AN INVESTIGATION ON FIRE DISASTER PREPAREDNESS IN SECONDARY SCHOOLS IN UASIN GISHU COUNTY, KENYA

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DECLARATION

Declaration by the Candidate

This is my original work and has not been presented in any other university for examination. No part of this thesis may be reproduced without my knowledge and that of the University of Eldoret.

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DEDICATION

This work is dedicated to my father Johana Muiruri and mother Consolata Nyambeki, who are the source of my academic inspiration. To my siblings Martha Okoth, Eunice Moraa, Peter Mose and Peris Njeri, who have continuously supported me in my academic endeavour. Not to forget my wife Ann Nyambura, children Ryan Muiruri and Patrick Finley, who have continuously given me the intrinsic motivation to go on.

ABSTRACT

A disaster is an event that happens suddenly resulting to devastation which may result to loss of life or great damage to property, disrupting lives. Fire disaster is one of the disasters that disrupt Education in Secondary Schools in Kenya. It is of particular great concern internationally that fire disasters are on the rise, as existing studies indicate. This study was motivated by the frequent reports of occurrence of fire disasters in secondary schools, with the aim of establishing whether the schools are prepared for the next fire disaster. The purpose of this study was to investigate on fire disaster preparedness in Secondary Schools in Uasin Gishu County, Kenya. This study was guided by the following objectives: To establish the existence of fire disaster management programs in secondary schools in Uasin Gishu County, Kenya; To investigate the existence of fire disaster management trainings to students and staff in secondary schools in Uasin Gishu County, Kenya; To examine the adequacy of fire fighting equipment in secondary schools in Uasin Gishu County, Kenya; To assess the level of compliance to fire safety policies set for construction of Education buildings in secondary schools in Uasin Gishu County, Kenya; To investigate the availability of school based psychosocial programs in secondary schools in Uasin Gishu County. Descriptive research design was employed to collect data on what, when, where, and how. The research adopted stratified random sampling to acquire a sample. Quantitative and qualitative data was collected through observation checklist and questionnaires. The data collected was analysed using descriptive statistics. The population of this study included 166 public secondary schools, 1792 teachers, 166 principals, and 2,732 Form III and Form IV students in Uasin Gishu County. The data was collected in a sample of 117 secondary schools, 117 principals, 327 teachers and 349 students. The data was analysed using Statistical Package for the Social Sciences. The findings were: 47.9% of schools had in place fire disaster mitigation programs but the programmes were not fully functional; 41.1% of the schools didn't conduct Fire safety trainings; 82.2% of the schools had inadequate fire fighting equipment; 75.3% of the schools had partially implemented MoE guidelines on construction of school buildings; 20.5% of the schools lacked psychosocial programs to address students and teachers psychosocial needs as an intervention to outbreak of fire disasters. The study recommends that all Educations stakeholders should come together and bridge the gaps identified in fire safety. The findings of this study will give insight to the current fire disaster preparedness in public secondary schools in Uasin Gishu County, Kenya. The findings will be of importance to the Ministry of Education in its mandate to ensure Education is delivered in a safe environment. The study will also be important to curriculum developers of Secondary schools, by informing on existing gaps regarding fire safety in the curriculum. The recommendations of this study will be useful to mitigate fire disasters hence saving life and properties of other secondary schools.

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ABBREVIATIONS AND ACRONYMS

AP	Assembly Points
CEB	County Education Board
DRR	Disaster Risk Reduction
EP	Emergency Plans
FEEP	Fire emergency evacuation plan
FEMA	Federal Emergency Management Agency
FD	Fire Disaster
FFE	Fire Fighting Equipment
FFF	Fire Fighting Facilities
FS	Fire Safety
GOK	Government of Kenya
HSAC	Health Safety Advisory Committee
INEE	Inter-Agency Network for Education in Emergencies
KNAP	Kenya National Association of Parents
MHEST	Ministry of Higher Education Science and Technology
MOE	Ministry of Education
NCST	National Council of Science and Technology
NACOSTI	National Commission for Science, Technology and Innovation
QUASOs	Quality Assurance and Standards Officers
SPSS	Statistical Package of Social Sciences Software
UN	United Nations
UNISDR	United Nations International Strategy for Disaster Reduction
WCDR	World Conference on Disaster Reduction

OPERATIONAL DEFINITION OF TERMS

Disaster refers to a serious disruption of the functioning of a community or a society causing widespread human, material, economic or environmental losses that exceed the ability of the affected community or society to cope with using its own resources.

Emergency is a sudden and serious event or an unforeseen occurrence that necessitates immediate action to remedy harm or avert imminent danger to life, health, or property of individual or community.

Fire disaster management programs refers to any activities that seeks to enhance fire emergency preparedness and fire disaster response before any such disaster occur.

Fire emergency evacuation plan is a written document which includes the action to be taken by all staff in the event of fire and the arrangements for calling the fire brigade.

Fire disaster Preparedness this refers to all activities that target to improve response to fire disaster just before or during the disaster and coping capabilities after the disaster

Fire Disaster Management Trainings refers to any training designed to teach on preventive measures that will eliminate or minimize causes of fire, and train on fire emergency and fire evacuation procedures in the event of a fire.

Fire Fighting Equipment refers to any technical equipment designed to extinguish, rescue and protect people, valuable goods and natural resources from fire.

Fire Safety Policies refers to any set of principles of action adopted or proposed by the government aiming at reducing occurrence or probability of occurrence of a fire disaster.

School Based Psychosocial Programs refers to the mental and the social factors in a person's life that affect ones thinking and behaviour they include factors such as relationship, education, age and employment.

Continual Improvement refers to the process or approach to problem solving that represents an ongoing effort to improve the overall outcome of a problem

Fire drills refer to an exercise intended to train people in duties and escape procedures to be followed in case of fire outbreak

Quality Assurance and Standards Officers a section of the Ministry of Education that does systematic review of educational provision to maintain and improve its quality, equity and efficiency. This involves school self-evaluation, external evaluation or inspection, the evaluation of teachers and school leaders, and student assessments.

ACKNOWLEDGEMENT

CHAPTER ONE

INTRODUCTION

1.1 Introduction

This first chapter introduces the rationale of fire disaster preparedness. It contains statement of the problem, purpose, and objectives of the study, research questions and the limitations of the study. The chapter will give the general perspective of this study.

1.2 Background of the Study

Fire disaster preparedness means a continuous improvement process of planning, organizing, training, equipping, exercising and evaluating strategies to ensure effectiveness, coordination and enhancement of capabilities to react during a fire disaster (FEMA, 2020). This cycle of continuous improvement doesn't end with the accomplishment of its targets rather it continues to make the processes even better. The term "continuous improvement" is used across industries to describe a process or approach to problem solving that represents an ongoing effort to improve outcomes as defined by the American Society for Quality (ASQ, 2023). Incidents of fire in secondary schools have been happening worldwide, and countries in the world are being affected by fire disasters, though the magnitude and severity of fire disasters differ from one country to another and also the levels of awareness and preparedness levels differ (ACF, 2006). Organizations that employ the continuous improvement strategy have been categorized as "high-reliability organizations," which strive to operate error-free under high-risk conditions (Weick & Sutcliffe, 2007). According to the Fire Administration National Data Centre (FANDC) South America, Asia and Africa, have recorded large death tolls related to school fires due to lack of preparedness (FANDC, 2007). School organization

can be considered as high-risk organization due to the frequent reports of fire disasters, this therefore calls for proper preparation for disasters before they occur.

Fire disaster preparedness can be achieved by having fire disaster programs. Even so the fire disaster preparedness programs must be utilised. This programs when fully utilised, increases the chance of preventing accidents, this has a ripple effect that results low level impact on property and loss of life (Armstrong, 2006). Instead of waiting for this disaster to occur, it is safer for schools to always prepare by putting up the necessary mechanisms that enhance fire safety and therefore avert disaster.

There is always a potential risk of fire hazard that can cause fire disaster around us. This was evident when a fire razed Bombolulu Girls Secondary school in Mombasa County 1998 killing twenty-six girls (The Standard, 2012). Twenty-six girls lost their lives and many were injured not accounting the worth of properties lost. This wasn't the first fire disaster to happen neither did it ever become the last as later events show. Other fire disasters that were later witnessed in other Kenyan secondary schools are;

- Nyeri High School located in Nyeri County where four school prefects were set on fire in 1999

- The 2001 tragedy at Kyanguli Secondary School that is located in Machakos County where 67 learners died.

- Endarasha Boys Secondary School in Nyeri County where Students set ablaze a dormitory killing two of their schoolmates in 2010

- Moi Girls High School Nairobi County where eight students ended up dead from a fire in 2017

School fires have continued to destroy life and properties after the incidents to date. The most recent fire disasters, having taken place in Masara Mixed Secondary School dormitories in December 2020 (The Standard, 2020), Vihiga Boys Secondary School inferno that burnt the dormitories destroying properties of unknown value (K24TV, 2021) and Kisumu Boys High School (The Standard, 2022).

Figure 1.1: Dormitories of Kisumu High School damaged by fire in August 2022 (The Standard, 2022)

Fire disasters in Kenyan secondary schools have become rampant. Morphing into a time bomb waiting to detonate anywhere any time. No one can tell in which school the next fire disaster will occur. Fire disaster results to deaths and property destruction, this is unnecessarily expensive (Gichuru, 2013). This is especially true where learners share dormitories that are sometimes crowded.

Internationally many governments have emphasised on promoting school safety, manuals have been written, curriculum adjustments, guides and training materials have been distributed as well as national, regional and international meetings have been organized by bodies such as World Conference on Disaster Reduction (Shaw, 2002). Despite all this effort fire is the commonest disaster that results to deaths and property damage in Kenyan schools (Makhanu, 2009). Therefore, the chance that the next disaster to occur in a secondary school in Kenya is a fire disaster is high.

WCDR has resolved that education should help build a culture of safety at all levels and this begins at school by mobilizing efforts to integrate disaster preparedness infrastructures and procedures into school curricula (UNISDR, 2007). According to the United Nations Educational, Scientific and Cultural Organization (UNESCO), the well-being of children in school is a concern of everyone since they spend a significant proportion of their time at school (UNESCO, 2019). It is thus imperative to proactively address fire safety in schools before a disaster materializes because this would be too late.

In Kenya despite the existence of a Safety Standards Manual in secondary schools, fires are still rampant. The National Crime Research Centre in Kenya indicated that 37.5% of the schools were burnt, 32.5% were schools where attempts to burn took place while 30 % of schools had no incidence (NCRC, 2017). This statistics are alarming.

 This points out more studies needs to be conducted to help reduce the magnitude and severity of fire disasters. We need to establish the challenges of implementing the policies and laid down guidelines.

Nyakundi (2012) in a study of the "implementation of safety standards guidelines in secondary schools Marani District" and Gichuru (2013) in a study "Fire disaster

preparedness strategies for secondary schools in Nyeri Central District" recommended that further study should be extended to other districts to enhance generalization, since occurrences and the trajectory of fire disasters is alarming.

Fire, like any other disaster can result to a great loss in; human life, environment, economy, materials and even time. To the learners, exposure to fire disasters at a young age results to unimaginable trauma and social disruption in case life is not lost. To the parents the uncertainty of the safety level of their learners at school is inevitable.

In view of the foregoing, there is need to conduct a study to assess fire disaster preparedness and appraise the level of compliance to fire safety policies in secondary schools in Uasin Gishu County, Kenya. The major concern of this study was be to investigate the level at which the laid down policies and guidelines on fire disaster preparedness for secondary schools in Kenya have been implemented in secondary school in Uasin Gishu County, Kenya.

1.3   Statement of the Problem

Fire related disasters in schools are rampant throughout the world. In Kenya fire disasters have resulted to great losses in schools. Same good examples are loss of life, property and disruption of the education of young people. Fire disaster have recognised as the main and commonest disaster in secondary schools in Kenya as stated by Akumu (2014) in his research on Disaster Awareness and Preparedness of Secondary Schools in Homa Bay County, Kenya.

Due to the frequent reports of fire disasters in the country there is a dire need to establish the current status on fire disaster preparedness in Uasin Gishu County, Kenya. If improvements on fire disaster preparedness are not done, fire disaster will continue

resulting to loss of life and property; this is unnecessarily expensive (Gicheru, 2012).

The Kenyan government has attempted to address the problem of fire disaster in schools through the guidelines in the Safety Standards Manual, which has been issued to all schools. The question that arises is "How far have the guidelines in the Safety Standard Manual been implemented to curb fire disasters in secondary schools?" This study therefore aimed to investigate fire disaster preparedness in regard with implementation of these guidelines in Uasin Gishu County, Kenya.

1.4   Purpose of the Study

The main purpose of this research therefore, to investigate the current level of fire disaster preparedness in secondary schools in Uasin Gishu County and establish whether the available measures and policies laid down to promote fire disaster preparedness in secondary school had been implemented in secondary schools in Uasin Gishu County, Kenya.

1.5   Objectives of the Study

1.5.1   Main Objective

The main objective of this study was to investigate fire disaster preparedness in secondary school in Uasin Gishu County, Kenya based on the guidelines provided by Ministry of Education Safety Standard Manual 2008.

1.5.2   Specific Objectives

The study was lead by the following specific objectives:

i. To establish the existence of fire disaster management programs in secondary schools in Uasin Gishu County, Kenya.

ii. To investigate the existence of fire disaster management trainings to students and staff in secondary schools in Uasin Gishu County, Kenya.

iii. To examine the adequacy of fire fighting equipment in secondary schools in Uasin Gishu County, Kenya.

iv. To assess the level of compliance to fire safety policies set for construction of Education buildings in secondary schools in Uasin Gishu County, Kenya.

v. To investigate availability of school based psychosocial fire disaster preparedness programs to reduce arson in secondary schools in Uasin Gishu County.

1.6   Research Questions

The study addressed the following questions:

i. What is the status of existence of fire disaster management programs in secondary schools in Uasin Gishu County, Kenya?

ii. What is the status of the existence of fire disaster management trainings in secondary schools in Uasin Gishu County, Kenya?

iii. How adequate are fire fighting resources in secondary schools in Uasin Gishu County?

iv. To what level have schools in Uasin Gishu County complied with fire safety policies for construction of school buildings?

v. To what level have schools in Uasin Gishu County availed school based psychosocial fire disaster preparedness programs to reduce arson?

1.7   Significance of the Study

It is anticipated that this study will provide valuable data to the government, more so the Ministry of Education, school management committees, parents and education

stakeholders the immediate and long-term countermeasures to be employed to reduce occurrence and frequency of fire disasters in secondary schools in Uasin Gishu County and Kenya at large.

The study recommendations will provide information to secondary school's management to encourage prudent and well informed decisions early enough before fire disasters occurred.

The recommendations be of importance to the Ministry of Education as its mandated to ensure education is delivered in a safe environment. The study is also important to developers of secondary schools' curriculum, by informing on existing gaps regarding fire safety in the curriculum.

The information in this research will be used to mitigate fire disasters hence potential of saving life and secondary school property. Information in this research will equally be a valuable reference for other researchers, interested to research deeper on the subject of fire disaster preparedness for the secondary schools.

1.8   Scope of the Study

Scope entails the degrees in which a researcher explores a given research problem. It also refers to parameters under which the research is meant to be operating. This means specifying the domain of the research and clearly stating what the researcher is studying including the factors that are within the accepted range of the survey (Simon, et al., 2013). This research was conducted in Uasin Gishu County. Data collection was done on the accessible population of selected public secondary schools in Uasin Gishu County, Kenya. The units of analysis were be the secondary schools in Uasin Gishu County, while the units of observation were the teachers, students and other members of non-teaching

staff of individual secondary schools. The study gave attention to assessment of preparedness to fire disaster and compliance to the laid down guidelines by the ministry of Education with the aim to reduce fire disaster occurrence and severity.

1.9   Limitation of the Study

Limitations are study issues that the researcher cannot control. The study of fire disasters in schools is very wide. This study was limited only to the assessment of fire disaster preparedness in secondary schools. Therefore the researcher did not investigate the causes of fire disaster rather the study gave attention to assessing preparation and implementation of available guidelines to mitigate fire disasters.

Lack on money needed for collection of data, typing, printing, photocopying, binding and transportation from one area to another. This was solved by personal savings.

Time constrains, the time available for collection of statistical data was limited, therefore the researcher trained a data collection team that ensured the process was done within the time limits.

1.10   Assumption of the Study

The study adopted the assumptions below:

i.   That the target secondary schools had the correct information needed by the researcher.

ii.   The teachers, learners and staff provided honest information.

iii.   That no similar study whatsoever had been conducted in the exact same schools sampled for this particular study.

iv.   The existing fire disaster preparedness situation in the sampled secondary schools reflected the actual status of schools in the entire County of Uasin Gishu.

v.   That the respondents in this study voluntarily participated without any intimidation or coercion.

1.11   Justification of the Study

Secondary schools in Kenya have seen the occurrence of fires become rampant in the past few years. Various countermeasures have been employed by the Ministry of Education aiming to minimize the occurrence and severity of fire disasters in secondary schools. Despite the fact that there has been efforts to have fire disasters management in secondary schools in Kenya as indicated by previous studies, fire disasters are still happening hence there was a need to go back and assess the status of fire disaster preparedness in secondary schools as was.

Previous studies done in other counties indicated that fire disaster preparedness was still not elaborate in some secondary schools. This necessitated the research on whether the situation was the same in Uasin Gishu County. This study gives recommendation targeting improvements and aiming to change the trajectory of fire disasters in Uasin Gishu County and Kenya at large.

1.12   Theoretical Framework of the study

This research adapted two theories; the Human Motivation Theory postulated by Abraham Maslow (1943) and the Psychosocial Development theory postulated by Erik Erikson (1968).

1.12.1 The Human Motivation Theory

This theory classified human needs into five levels from the most basic to the highest.
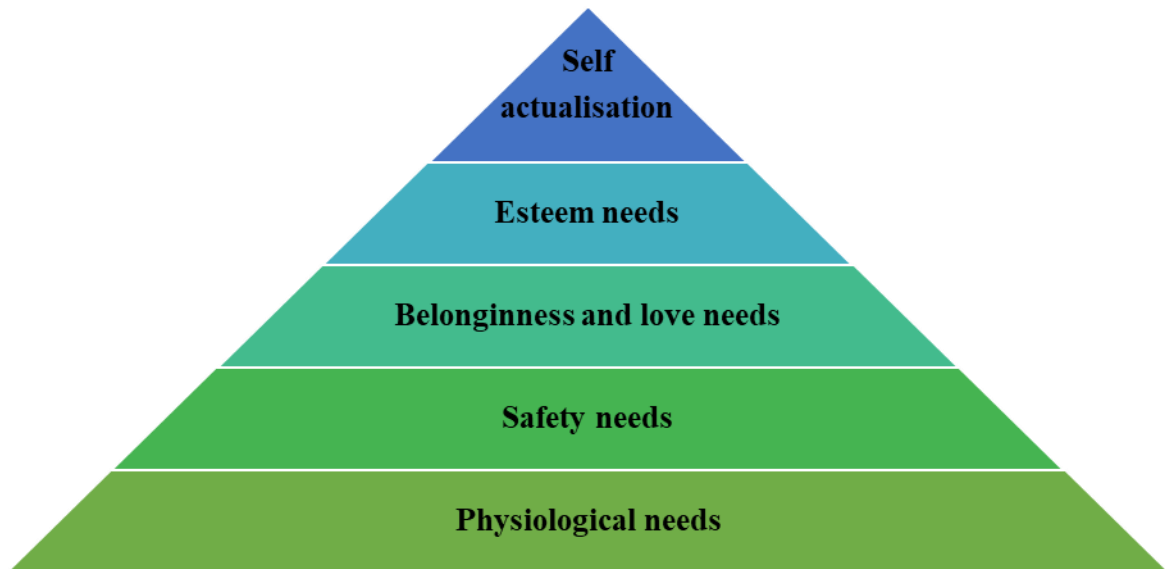
Figure 1.2: Maslow's hierarchy of needs (1943, 1954) is represented as a pyramid

According to this theory there are certain minimum requirements that are essential to live a decent life. These basic needs are called physiological needs. They are the most basic for human survival and they are universal. They are; food, shelter, health and clothing. Physiological needs must be catered for before all the other needs. This means that if individuals are struggling to meet physiological needs, then it will be unlikely for them to pursue the other needs higher in the hierarchy of needs.

The second level is safety needs. Once the physiological needs are relatively satisfied safety needs precedes. Individuals are unlikely to pursue higher levels on needs if they feel insecure in the environment. Safety hence is the key in order to pursue higher levels of needs in life. The third level consists of a sense of belonging and affection followed by esteem needs and self-actualisation.

From this theory school safety and security policy underscores the government commitment to the safety and overall welfare of our learners especially children (MoE, 2008). The safety, health and the environment of learners is therefore of paramount importance. According to Maslow's theory the learners cannot meet the next level of needs before the security level is met. Hence no meaningful learning can take place in an institution if the safety of learners is not given a priority.

Fire disasters deny learners this second need that is a basic human right. Fire disasters destroy the shelter, when school dormitories and classes are consumed by fire. The study adopted the Human Motivation theory in attempt to stress on the significanse of a safe and secure learning environment. This was done by assessing fire disaster preparedness in secondary schools in Uasin Gishu County.

1.12.2 The Psychosocial Development theory

Erikson and his wife Joan, postulated that personality tends to develop in a sequence of eight stages that they called psychosocial development that start in one's early years and progress to old age. In each of these stages, an individual experiences a psychosocial crisis that may result to either a success or a failure in that stage (Erickson, 1968).

This theory provides a broad framework in the study of human development throughout people's entire lifespan. Instead of focusing only on early childhood events and people's educational development, his psychosocial theory considers how educational and social influences and relationships contribute to people's personalities throughout their lives (Cherry, 2021).

This theory is valuable since it covers identity crisis of psychosocial nature. The results of the crisis is psychological needs of a person tend to conflict with the societal needs (Erikson, 1968). There are eight stages of Psychosocial Development.

Table 1.1: Erik Erikson's Psychosocial Development theory (1968) represented as a table

Stage	Psychosocial Crisis	Basic Virtue	Age
1.	Trust against Mistrust	Hope	0 - 1½
2.	Autonomy against Shame	Will	1½ - 3
3.	Initiative against Guilt	Purpose	3 - 5
4.	Industry against Inferiority	Competency	5 – 11
5.	Identity against Role Confusion	Fidelity	12 – 17
6.	Intimacy against Isolation	Love	18 – 39
7.	Generativity against Stagnation	Care	40 - 64
8.	Ego Integrity against Despair	Wisdom	65+

From this theory, a success in one stage leads to healthy personalities and equally development of basic virtues. This virtues builds strengths to resolve the psychological crisis. This means that an individual has had a successful passage of that stage. The scenario is opposite if an individual fails in the stage, the result is minimal ability to proceed positively with subsequent stages. The individual may therefore loose the sense of the self, due to an unhealthier personality. Still the crisis develop may resolve later in life (Erikson, 1968)

This research used the fourth and the fifth stages to attempt to describe the psychosocial aspect of students and factors that influence their behaviour in in the course of their adolescent life while in the secondary schools.

1.12.2.1 Industry against Inferiority

This is Erikson's fourth stage according to the psychosocial development theory, involves competence or industry against Inferiority. This may develop during early years of around five to eleven years. Children at this stage are learning to read, write, and do sums. There occurs a crises between the needs of the child and the directives of the teacher.

Also a crises develops from the child's peer group and becomes a significant source of self-worth and self-esteem. At this stage a child will strive to gain approval by showing competencies in activities valued by the society in general. This creates a sense of pride from these accomplishments (Malone, 2016).

If the children's initiatives are reinforced, they tend to become competent and gain confident in whatever activity they feel successful in. If these initiatives are not encouraged and are discouraged by parents and teachers, inferiority sets in, wherein they doubt their own abilities. With the doubts the child finally is unable to reach their full potential. They hence fail to develop the specific life skill making the society seam demanding. This then results to development of Inferiority (McLeod, 2018).

If a child succeeds in this stage they develop the basic virtue of industry or competency. Competent learners feel positive about themselves and the school environment. The leaners who have acquired the sense of industry and have satisfied the demand of the

society are more likely support school initiatives and less unlikely to be involved in arson attacks. On the other hand, learners who feel inferior are less likely to support school initiatives and cannot satisfy the society demand hence more likely to be involved in arson attacks.

The feeling of inferiority coupled with inability to develop specific skill and the feeling that the society is involving may lead to frustration resulting to drug abuse and subsequent arson attacks. Akoko (2017) identified drug abuse as a leading factor to arson in schools in Kenya.

1.12.2.2   Identity against Role confusion

This is the fifth level in the psychosocial development theory. Identity against role confusion which was described to occur when individuals are at adolescent. This was described to be between 12-18 years of age. At this age learners are mostly in secondary schools. The learners at this stage are seeking to acquire identity of the self, therefore they deeply explore their values, individual beliefs, and lifelong goals.

As individuals grow to adulthood and move from childhood, they become more self-aware, more independent, and start to focus on the future as far as occupation is concerned, forging relationship ties, having a family, building a home and the like. In this stage the learners are inclined to belong, own and fit into a society (McLeod, 2018).

It is during this adolescent stage where the mind of learner is prohibited in some way to explore. The child is then taught to learn his or her adult roles. Since the stage is in between the childhood stage and the adulthood stage, the developing minds is torn between the morality taught and the moral ethics to be developed as an adult (Erikson,

1963, p. 245). The learner at this stage will also try to define the self, to explore who they are. This leads to development of a new set of identities sexual and also occupational. Afterwards this stage comes to its conclusion. The self becomes reintegrated, the individual is aware of what they want to pursue in life. The sex role of the individual also gets realised. The image of an individual's body will also be changed (Bee, 1992). This change will result to the individual becoming conflicted with their new body till they finally get adapted to it. After the adaptation the successful individual will develop fidelity. With this virtue they are able to accommodate people of different ideologies and at the same time be committed to the self.

Learners who have succeeded in this stage are committed to the administration and easily accept the ideas put forth for the purpose of school management. Secondary school students after success in stage can choose to agree or disagree with school rules or result to using violence to communicate.

As learners form identity they do so through experimentation as a response to identity crisis. They may fail to identify themselves in the general society, unable to tell what they may want to be in future. This may bring about role confusion. Role confusion involves the individual not being sure about themselves or their place in society (McLeod, 2018).

If the learners are pressured into an identity that is not familiar to them this may result to rebellion, negative identity and lack of fulfilment. This can later be manifested by arson attacks. Erikson (1968), and equally Hihara, Sugimura, and Syed (2018) argue that people's identities have negative and positive features, with 'negative identities not simply lacking positive ones' (Hihara et al., 2018, p. 325). Erikson, Erikson, and Kivnick (1986) contend that, in the presence of adequate support structures as well as actual

support, education and guidance, people who are emotionally and socially 'healthy' can successfully negotiate the numerous psychosocial struggles in their lives.

Lack of a self-identity may develop to psychological crisis among the learners. The crisis can sum up to depression or rebellion. The rebellion can also be resulted by lack of a purpose for education in the schools. The rebellious students may later use arson as method of expressing the frustration consequence of the psychological crisis. This was evident when a student in Moi Girls Nairobi started a fire that resulted to the death of ten of her colleagues in 2017, simply because she desperately wanted a transfer from that school (The Star, 2021).

This study used the Psychosocial Development theory in attempt to investigate the availability of school based psychosocial programs in secondary schools in Uasin Gishu County.

The two theories employed, together assisted the researcher to understand the rationale of fire disaster preparedness. The psychosocial theory gave in-depth knowledge on how development is a product of the interaction between individuals and the social environment around them, while the human motivation theory informed what exactly motivates and individual's behaviour. In an attempt to fulfil the five basic needs individuals are motivated in various ways, while failure to achieve success in one of the stages in the psychosocial theory results to psychological crisis. Lack of satisfaction on any need in the hierarchy of needs leads to loss of motivation to move successfully in the next stage. This two theories help bring out the problem faced in balancing the individual needs and general needs of a group. The theories contributed to the researcher's understanding of how the lack of motivation among students and lack of basic safety

provisions in the education environment affected behaviour of the students' teachers and the school management in secondary schools in Uasin Gishu County, Kenya.

1.13 Conceptual Framework

A conceptual framework is a model of presentation where a researcher conceptualizes or represents the correlation between the variables in the study. It also shows them graphically or diagrammatically (Orodho, 2003). A conceptual framework should assist a researcher to organize his/her thinking and complete an investigation successfully (Symth, 2004). The conceptual framework gave a connection between the dependent variables and independent variables. It also served to answer the why in the research questions.

Independent Variables   **Dependent Variable**
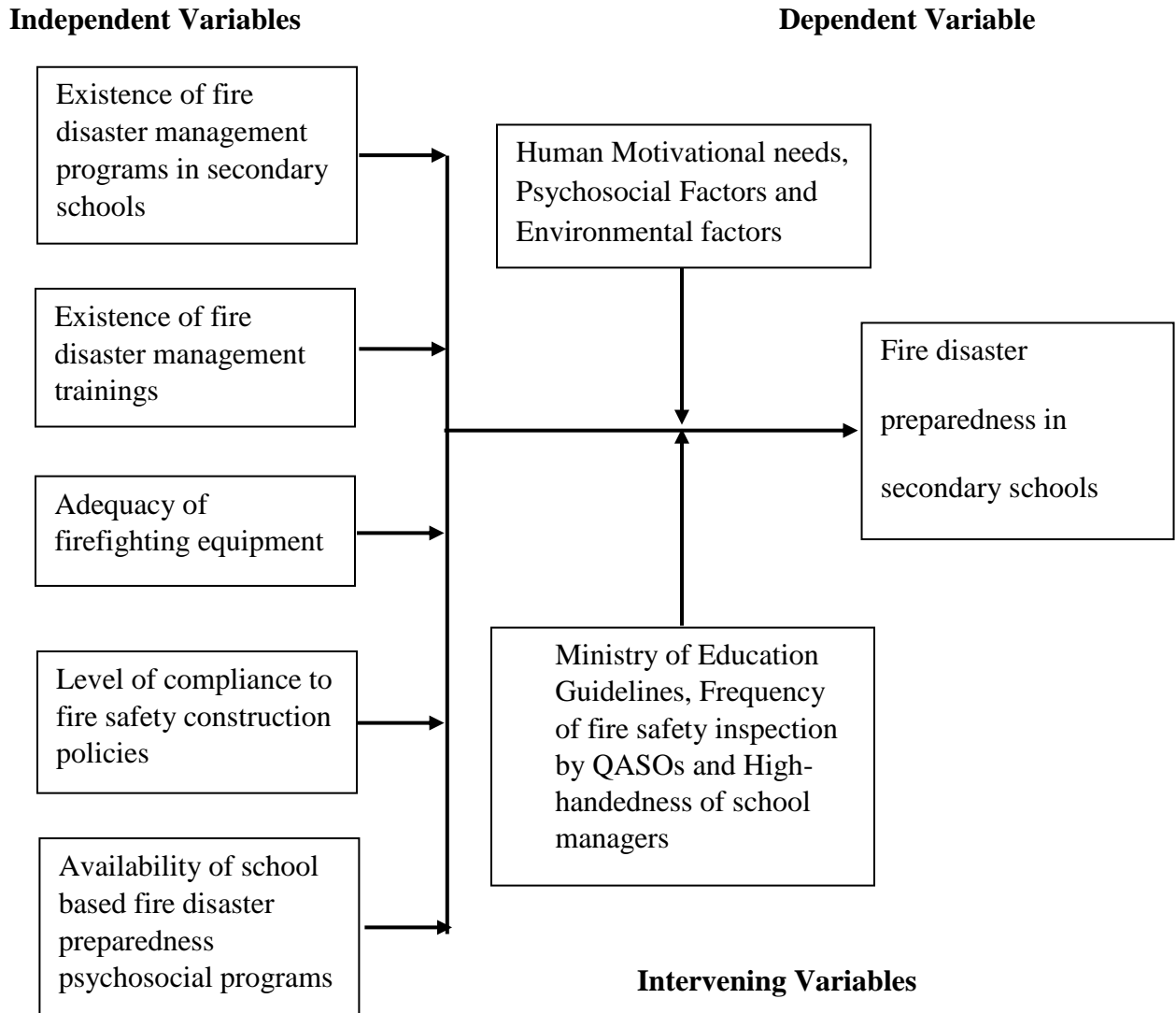
Figure 1.3: Conceptual Framework on Fire Disaster Preparedness (Author, 2023)

This conceptual framework focused on assessing the evidence of fire disaster preparedness in secondary schools in Uasin Gishu County. The dependent variable is Fire disaster preparedness in secondary schools and the independent variables are; existence of fire disaster management programs, implementation status of from previous studies, Level of fire disaster preparedness, existence of fire disaster management trainings, adequacy of fire fighting equipment and compliance to fire safety construction policies.

The potential for occurrence fire disaster in schools is high, this necessitates fire disaster preparedness. From the conceptual framework there is a clear indication of link between the dependant and independent variables. Maslow (1962) postulated that humans have certain basic needs such as physiological needs, safety needs, love, esteem and self-actualization needs. This indicates that learning in secondary schools would be less effective if learners lack basic needs and lack safety. For the school's environment to be regarded as safe from fire disasters, there should be functional fire disaster management programs, continual improvement from recommendations from previous studies should come out clearly, existence of fire disaster management trainings, adequacy of fire fighting equipment and compliance to fire safety construction policies.

The independent variables are directly linked to fire disaster preparedness. Therefore, a school with fire disaster management programs is better equipped in case of an actual fire disaster. A school that has complied with the fire safety construction policies is better prepared in case of a fire disaster. Schools that have trained their teachers, students and non-teaching staff on fire disaster management are better prepared than those without such trainings. Schools with adequately replenished fire fighting equipment that are properly inspected is better prepared that those schools without adequate fire fighting equipment or without proper inspection of the same.

1.14   Summary

This chapter discussed fire disaster preparedness as a continuous improvement process. Where fire disasters have become a rampant in secondary schools in Kenya. In the concept of continuous improvement problem solving is a continuous process with efforts to improve the overall outcome. With this the chapter discussed the research problem of

fire disasters. The Government of Kenya in its attempt to address the problem of fire disaster in schools has issued guidelines in the Safety Standards Manual, which has been issued to all schools. Even with the Safety Standards Manual in place fire disaster has been identified as the commonest disaster in in secondary schools in Kenya (Akumu, 2014). Previous studies done in other counties indicated that fire disaster preparedness is still not elaborate in some secondary schools hence need to research whether the situation is the same in Uasin Gishu County. This study therefore sought to investigate fire disaster preparedness in regard with implementation of the guidelines in the Safety Standards Manual issued by the Ministry of Education and other recommendations from previous research studies. Uasin Gishu County, Kenya was the area in which the investigation on preparedness for fire disasters was conducted.

CHAPTER TWO

LITERATURE REVIEW

2.1   Introduction

This chapter deals with the review of the available literature on fire disasters in secondary schools. From the assumption that knowledge accumulates and that people learn from and build on what others have done (Newman, 2003) this study reviewed literature on the subject to get in-depth knowledge both from the local perspective and international.

The review has discussed the impression of fire safety in secondary schools, the abstraction of fire disaster awareness and preparedness. The review focused on fire management in secondary schools, measures that can be employed to reduce likelihood of a fire disaster, necessary training that can be given to students and staff, construction policies that can be applied to reduce fire disasters in secondary schools and fire fighting equipment that are essential in secondary schools.

2.2   The Concept of Fire

Fire refers to a phenomena in which oxidation of a fuel at high temperatures results to spontaneous combustion. Fire is a chemical process made up of heat, fuel and oxygen. The trio makes up the fire triangle. Energy in the form of heat and light is produces as the by-product of the chemical reaction (Calams, 2020). In a building fire may be as a result of negligence, poor housekeeping, faulty electrical appliances, overloading of electrical utilities and use of fire conductive materials during construction. Fluctuations of the mains electrical stability has a potential of resulting to a fire (Wang, 2018).

There are different stages till a fire develops. This stages are mainly: initial ignition, smoulder or flame growth, full growth and finally burn out (Calams, 2020). Ignition begins when the three elements of the fire triangle that is heat, fuel and oxygen, came together starting a small fire. The next level of fire development is the growth level, where intensity increases. The final stage is called full development, where the fire reaches its maximum temperature. At the full development stage the fire will burn most of combustible materials adjacent to it. The fire then moves to the burn out stage, here the fire starts to die down due to removal or exhaustion of one of the materials in the fire triangle. Once the fire has died down its prudent to verify that the fire is completely dead since any introduction of any of the depleted material in the fire triangle will result a new fire (Proulx, 2003).

The most commonly accepted classes of Fire are: Class A, Class B, Class C, Class D and Class K. Class A fires are described as those from combustible materials such as paper or wood. Class B fire are identified as fires from liquids that are flammable. Class C fires are identified as those fires from Electrical appliances that are faulty. Class D fires are from burning metals. The fire extinguisher for class A is water so as to remove heat. That of class B is foam so as to remove oxygen. That of class C is Carbon Dioxide so as to remove oxygen and the extinguisher for class D is dry powder so as to remove oxygen. There is another class of fire identified as Class K. The class K fire is caused by cooking oils, vegetable fats and even animal fats. For class K the fire extinguisher used is called Wet chemical (Craig, 2009).

2.3   Causes and Impact of Fire Disaster in Secondary Schools

2.3.1   Arson Attacks

According to Jain, (New Delhi, 2010) in his book "Fire safety in buildings" on studies conducted in India shows that one of the major causes of school fire is arson. Arson is the wilful or deliberate setting of fire on property with malicious intent of destroying. Arson is a criminal offence both locally and internationally regardless of the person committing the offence. In the Kenyan penal code Cap 63 section 332 and 333, the law provides that arson is any wilful and unlawful act of setting fire on buildings whether complete or incomplete, land or a workplace and any person guilty of such an offence is liable for a life sentence.

According Shibutse et al. (2014), 21.5% of Boarding Secondary Schools fire in Kenya, were as a result of students' unrest. Student unrest happens when students do not agree with existing laws and also when students want to be heard. Students' indiscipline was noted to be the major cause of riots and arson in Tanzania (Nyagawa, 2017). Cooper (2014) on a study conducted in Kenya argues that students use arson as an instrument of power that the structurally weak like themselves can employ to serve their interests. This means that learners use arson to raise their voices to be heard.

In 2016, statistics from National Crime Research Centre in Kenya indicated that 37.5% of the schools were burnt, 32.5% were schools where attempts to burn took place while 30 % of the schools had no incidence (NCRC, 2017). This statistics are alarming.

In another study, students in Kenya are described to be in a stage of self-realization in which they pursue their own empowerment so that they can use the power to humble authorities (Malenya, 2016). Arson is therefore used by learners as a means of

communication when they are dissatisfied by the school authorities. Arson is also employed by indiscipline students to punish other students and also to punish the school authority. This is so because from the psychosocial theory the students in Kenyan secondary school fall in the fifth and sixth development stages. This stages describe transition from childhood to adulthood. Learners succeed by gaining identity that results to responsible learners while failure brings about role crises and confusion that may lead to disappointments in life. This disappointment maybe resolved by arson in a quest to influence the school authority. Using these studies, it is safe to conclude that arson in secondary schools isn't a trend that will end overnight.

Fire disasters in have resulted to loss of life, destruction of property and discontinued learning. Failure to introduce a comprehensive fire disaster preparedness policy means peoples response to high-risk fire disasters will remain slow, poorly co-ordinate and unnecessarily expensive (Gicheru, 2012).

2.3.2 Electrical Faults

Electrical faults, failures, inadequacy of electrical safety devices and accidental ignition are the other major cause fire disasters (Furness & Muckett, 2007). Fires in buildings may be caused by poorly done wiring or even overloading of electrical outlets. Also, poor installations of electrical appliances adjacent to farmable materials pose a fire hazard. Power fluctuations, transient overvoltage's also pose a fire hazard (Wang, 2018).

Fire disasters have also been resulted by failure to comply with any of the general safety or fire specific legislation (Furness & Muckett, 2007); and other human factors like lack of proper training, lack of discipline such as carelessness, boredom, fatigue, negative attitudes and irresponsible social habits such as use of drugs (Jain 2010).

Fires have also been attributed to lightening. Lightning may be defined as a transient, high-current electric discharge whose path length is generally measured in kilometres (Uman, 1994). Lightning accompanied by rain that evaporates before it hits the ground also called Dry lightning is the most likely type of lightning to ignite a fire (USFS, 2019). The presence of fire hazard conditions, including high heat, low relative humidity, and a high volume of dry fuels, can increase the likelihood of ignition caused by a lightning strike. Strong winds can also help spread fire once ignited. Drought can further increase the risk of lightning igniting a fire by creating conditions that are more favourable for dry lightning strikes (FEMA, 2023).

2.4   The Concept of Fire Disaster Preparedness in Secondary Schools

Disaster preparedness is commonly understood to encompass all activities that target to improve response to disaster just before a disaster has occurred or during a disaster and also coping capabilities after the disaster has occurred. Waugh, (2006) places emphasis on the recovery preparedness that is planning to respond effectively during and immediately after disasters and successfully navigates challenges associated with short and long-term recovery.

Secondary schools have measures put forward by the ministry of Education to avert disasters. But as it has been observed by researchers such as Akali, *et al* (2009) little have been done to prepare schools for fires.

The MoE (2012) has placed the following measures to curb fire disasters: Avoid congestion in buildings; Maintaining proper fire exits and proper exit sign; Placing and maintaining serviced fire extinguishers in easily accessible place; Proper storing/using combustible substances such as petroleum, paints chemicals or hazardous materials such

as solvent should be stored in tightly closed containers away from sources of heat. They must never be stored in classrooms or dormitories; Maintaining appropriate fire alarm systems for detection and warning of fire in school buildings; conducting fire drills at regular intervals throughout the year; regular checking of electrical wiring by qualified professionals and replacing any that is weak, broken or worn out; discarding all litter properly as they tend to quickly catch fire; properly regulating the use of hurricane lamps in dormitories; teachers to sensitize learners about the dangers of fire through the related sections in the curriculum; learners not to carry or play with fire lighters; fire fighting equipment or its alternatives (sand, water horses etc.) must be installed, strategically positioned and regularly inspected for proper functionality.

In boarding schools' dormitories, the space of one bed to the other should be approximately 1.2 metres. There should also be space of not less than two meter to be used as the pathway. The exits should be approximately five feet in width and must only open on the outwards direction only. At no one given time should the doors be locked using the outside locking device. The doors should be available on both ends of the dormitory and one emergency exit labelled at the centre of the building. Grills on the dormitory windows must be completely removed leaving enough space for exit in case of a fire. Fire alarms should be available and also fire extinguishers should be placed at the exits of the dormitories. Roll calls should be taken regularly and spot inspections by the boarding masters or the teachers should also be regular. The administrators should also plan accordingly to have security guards patrol the dormitory areas at night. The dormitories should also be out of bounds for the guests. Housekeeping should also be to standard and the hygiene of the learners should also be inspected weekly (MoE, 2008).

2.5 The Concept of School Based Psychosocial Fire Disaster Preparedness

Psychosocial denotes the mental and the social factors in a person's life. These social factors include relationship, education, age and employment that pertain to a person's life history (Pugh, 2002). These psychosocial factors relate to the relationship students form with their teachers, parent and even amongst themselves. The students are at an age and education level that can influence their action and behaviour. The society at large will also affect student's behaviour.

There has been concerns when the law makers in the Kenyan parliament fight and use abusive language while inside the parliament building (Africanews, 2021). This makes such conflict resolution methods acceptable by the society at large including school going students.

Psychological programs are known to be effective for children and young people after trauma (Morina et al., 2016). The psychosocial programs can be done proactively before fire disasters have taken place. This would have more advantage than post fire disaster psychosocial programs. The main psychosocial elements that have impact on student's behaviour have been discussed here.

2.5.1   Dehumanisation and Abuse of Student Rights

Student's actions, as human beings, are greatly influenced by their lived experiences. Experiences such as humiliation, oppression, alienation, disempowerment, denial of rights and freedom, anxiety, hopelessness and disillusionment (absurdity) gender dehumanization (Malenya, 2016). This means that all psychosocial experiences that students go through during the learning processes influence their behaviour since students are equally human beings.

Some experiences in schools may be dehumanizing to students. Experiences such as ethnic differences, competition for personal attention, political differences, gender discrimination, competition for leadership roles and competition for school resources .When dehumanized, students will act, react, or engage, sometimes with protest and intense violence. Kenyan students have learned that arson is effective as a tactic in protest politics and consider it as an instrument of power to negotiate survival needs (Wasonga, 2021).

According to Malenya (2016), the fundamental cause of student violence in secondary schools was identified as the experience of dehumanization of students. The solution to this was found to be the process of humanization. This essentially consists in the liberation of not only the students as the oppressed but also the school administrators, teachers and other stakeholders, as oppressors. This literature indicated that dehumanisation of the students was a significant psychosocial factor. The schools should therefore be readily prepared before fire disasters materialize.

2.5.2 Pear Pressure and Drug Abuse

Behaviourist theories postulate that learning through imitation and related forms has influence on behaviour. According to the Crowd behaviour theory individuals gathered together in a group suffer collective racial unconscious which supersede the individual sense of responsibility. Such group exert a hypnotic influence to their members thereby prompting them to behave irrational because of the charged behaviour (Liebling, 2012).

Adolescent students who cannot comprehend the meaning and value of accountability tend to be unruly and mostly responsible for harms caused during school strikes (Ochoa et al, 2007). This unruly student many times cause an influence to the rest of the students

causing peer pressure. Students in schools identify themselves in groups. This was evident when a group of students burned Uriri High School after they were denied to watch a football match. This was a copycat of the event that happened in Itiero Boys High School Kisii County in 2016 (The Standard, 2019). If a violent youth is part or head of a student clique, he or she can send messages of aggression to fellow peers and the receivers of the messages are coerced into keeping up appearances in order to be accepted and gain advantage (Cornbleth, 1948).

Peer pressure coupled by drugs abuse was identified by Akoko (2017) to be factors that influencing arson attacks in most secondary schools in Trans Nzoia County, Kenya. He noted that students in groups and gangs were able to obtain illicit drugs. They were described as having negative attitude towards schooling, resulting to arson attacks at any provocation. School based psychosocial fire disaster preparedness, can be improved if the schools are proactive in matters concerning drug abuse and peer pressure.

2.5.3   Social Media Access in Schools

Nairobi Governor Johnson Sakaja, as a senator; argued that too much media coverage of school arson incidences worsened the situation and requested the media to go slow on coverage (The Standard, 2021). Social Media such as Facebook, WhatsApp, Twitter and others were identified as major social factors that contributed to the school burning wave of 2016. The discussions were conducted through posts, tweets, hashtags and trending topics at a global scale (Oburu H, Coetzee B, Swartz L., 2020). This information reaches students through some means and becomes a motivation to copy. Glenn (2016) had made a similar observation regarding the 2015 #FeesMustFall movement in South Africa.

Discussions, photos and videos posted online had vicarious impact to other learners. The discussion on school fires resulted to digital vigilantism and resulted to secondary trauma (Oburu, Coetzee, & Swartz, 2020). The researcher therefore endeavoured to investigate the existing situation as regards fire disaster preparedness associated with the access to mainstream media and social media in the secondary schools in Uasin Gishu County, Kenya.

2.6   Adequacy of firefighting provisions in Secondary Schools

Fire fighting systems are automatic systems placed so as to automatically alert when there is a fires. The systems also attempt to combat fires immediately they start. Good examples of the firefighting systems are alarm systems, fire detectors, sprinkler systems and automated fire extinguishers. Firefighting provisions on the other hand are kept in proximity to fire risk areas so as to assist in manually combating the fire, examples; are fire extinguishers, manual sirens and hydrant systems. Inadequate funding and poor comprehension of the significance of firefighting provisions were some of the major grounds that discouraged utilization firefighting provisions in underdeveloped nations (Shaw, 2002).

A study conducted in Kyuso Sub-County in Kenya; pointed out that in inadequate firefighting provisions in a large percentage of the schools in the sub-county; 43% had about one to five firefighting equipment. Also, firefighting equipment, fire fighting points and first aid kits were un-proportional to the school population, hence inadequate to deal with any emergency (Mwenga, 2008).

This concurs with an observation made from a study in India that established that as many as 1,200 schools in the national capital, including some top privately run

institutions, are flouting fire safety norms. The study also established that most schools seemed more interested in admitting huge population of children instead of providing them a safe environment (Ians, 2010).

The cost of firefighting equipment was high and unaffordable in most schools in the North-Rift region. Also schools lacked fire combating facilities and those that had few showed signs of neglect (Lucheli, & Masese, 2009).

2.7 Construction of Secondary School Buildings in conformation to existing Fire Safety Regulations

Providing safe buildings for learning is a primary priority during planning stage of construction of school buildings. This is especially important because schools are known to have all manner of flammable material such as books, wooden desk and benches, mattresses for the boarding schools. These items are fuels that can feed fire resulting to fierce fires. With this in mind school buildings should factor in fire safety.

According to Kumba (2008), most secondary schools in the republic of Kenya lack elaborate systems for early fire disaster warning and hence not prepared for fire disasters. This concurs with a research conducted in India that noted the school buildings were not constructed properly to resist disasters (Petal, 2008).

Safety considerations should be laid down at the initial stages before the construction of a school building commences. The individuals expected to use the building should also be aware of the safety measures employed. They should also be fully aware of the loos likely to be incurred in the event of a fire on the building (Rowan, 2001).

If constructions are done without consideration of fire safety consideration and fire risk management the fire safety facilities may be inadequate. This would reduce the safety level risking loss of lives and property (Marion & Maingi, 2010). This may also result to destruction of important documents such as institutional confidential documents, student files, certificates, examination scripts, office equipment, books, workshop machinery and laboratory chemicals. School administration block, classrooms, laboratories and toilets should be built according to government specifications. Building regulations should be considered and hence provide an adequate means of escape, stairways, corridors, exits and limit use of combustible materials.

2.8 Fire Safety Training to the Teaching staff, non-teaching staff and the Students

No matter the effort put forth effective disaster plan will largely be ineffective if teachers, support staff and the students were unaware of its existence, or if it is not accessible during a disaster, (Patkus & Walpole, 2007).

The teachers and some selected non-teaching staff should written guidelines in what to do in case of a disaster. Fire safety departments did not exist in most schools and fire safety trainings were seldom (Makhanu, 2009). Probably due to negligence, or the attitude that God would manoeuvre matter to avert all kinds of disasters.

If the school staff were aware of what to be done before a fire disaster to ensure it doesn't occur at all and exactly what to do immediately there was a fire, schools would be safer from fires. This could only be achieved by conducting trainings. The MOE guidelines require institutions to have an individual in charge of school safety, a safety committee and fire drills at least twice each term. (MOE, 2008).

Kukali (2009) in a study conducted in Kenya, found out that fire safety basics were inadequate and also that lack of knowledge on immediate approach to specific disaster were some of the leading factors to high fatalities. Most schools wait till disasters strike to develop countermeasure rather than be prepared beforehand.

Makhanu (2009) added that staff members should each receive a copy of written guidelines and also receive verbal instructions given by a competent person on how to handle fire disasters. Such instruction shall include details of how to call the Fire Brigade. A record of the training and instructions given and fire drills held shall be entered in the log book and will include the following: date of the instruction or fire drill, duration, name of person giving instruction, name of the person receiving instruction, nature of instruction or fire drill. Fire drills, which may be combined with the instruction given above, should be carried out at least once per term. Each fire drill should be started by a pre-determined signal and the whole premises checked as if any evacuation was in progress. In large schools one teacher shall be made responsible for organizing staff training and to co-ordinate the staff response to fire disasters. Effective arrangements must be planned for the deputy or deputies to conduct the evacuation process if the teacher in charge of safety is away.

2.9   Recommendations from previous studies

When fire disasters happen in schools it is not uncommon to find newspaper reports suggesting that government reports with recommendations that would help solve the problem are "gathering dust" (Wanzala, 2017). This includes the recommendations, especially those concerning management of schools, that were never implemented because head teachers have not read the reports (Mureithi, 2016).

As mitigation measures for the prevalence of school fire disasters, other studies made significant recommendations, namely:

- Need for equitable distribution of resources so that students do not fight or abuse one another to access the resources, need for more entrenched teaching of peace education in secondary schools to enable all students to interact with peace values (Opere *et al*, 2019)

- Analysis of incidences of violence should also target school administration and teachers since they play a role in dehumanising students (Malenya, 2016),

- There is need to initiate guidance and counselling in schools to solve teacher and student's personal problems to curb the school fire disasters trajectory (Akoko, 2016).

2.10 Summary of the Literature Review and the Gap in Literature

The reviewed literature reveals that fire disaster preparedness has significance in the secondary schools in Kenya. It showed that property damage, injuries, trauma and even death can be prevented by installation on necessary measures to curb the occurrence of fire accidents and incidents. Some schools have employed fire safety measures while others have not put in place. Some schools have fire safety systems that are not in use due to lack of knowhow. The review has shown that secondary schools in Kenya had not been adequately prepared to face fire disasters. This implies knowledge gap on the actual status of fire disaster preparedness in secondary schools in Kenya. This study investigated the current state of affairs regarding fire disaster preparedness in Uasin Gishu County secondary schools.

The literature also acknowledged the efforts by the Kenyan Government, through the Ministry on Education to provide guidelines and policy on fire safety. But the goal of these policies hasn't accomplished its purpose. This research therefore aimed to investigate compliance to Fire Safety Policies and therefore determine whether secondary schools in Uasin Gishu County were prepared against fire disasters.

The literature showed that school fire disasters are on an upward trajectory. Therefore there is a gap in the current design of addressing school fire disasters issues. This research therefore aimed to assess the current state fire disaster preparedness situation in Uasin Gishu County, Kenya.

CHAPTER THREE

METHODOLOGY

3.1   Introduction

This chapter dealt with the research methodology that employed and how the research study was conducted. The chapter contains the philosophical research paradigm, the research design, the target population, the research sample size, research instrument, research instrument's validity and reliability, data collection procedures, data analysis methods employed and finally the ethical considerations of this study.

3.2   The Philosophical Research Paradigm

Research paradigm is a conceptual lens which the researcher examines the methodological aspects of their research to determine research methods to be used and how data will be analysed (Kivunja & Kuyini, 2017). Weaver and Olson (2006, p. 460) state that, "paradigms are patterns of beliefs and practices that regulate inquiry within a discipline by providing lenses, frames and processes through which investigation is accomplished".

The pragmatic research paradigm was employed in this study since it gave the researcher an opportunity to determine relationships in research by what the researcher deems appropriate to that particular study (Brierley, 2017). This research paradigm incorporates operational decisions based on 'what will work best' in finding answers for the questions under investigation and this enables pragmatic researchers to conduct research in innovative and dynamic ways and to find solutions to research problems.. This method provided deep mastery of the research topic, gave more detailed answers to research

questions, identify new research questions and suggest changes to subsequent research designs (Creswell, 2003).

3.3   Research Design

A research design is the arrangement of conditions for collection and data analysis in a manner targeting to combine relevance to the purpose of the research with economy in procedure (Kothari, 2004). This research adopted descriptive design to gather relevant data. Descriptive design is defined as a method of research that gathers data at a particular point in time with the intention of describing the nature of existing conditions of, or determining specific information (Kombo & Tromp, 2006). Creswell (2014) describes descriptive design as a type of research that depicts the state of affairs as it exists, where the researcher has no control over the variables and can only report what has happened or what is happening and attempts to discover causes when they cannot control the variables.

This nature of describing was the main reason why the design was employed for this research. Equally the researcher was focused to answer who, what, where, when and not why fire disasters are occurring. According to Orodho (2003), this method involves administration of questionnaires to a sample of individuals. It is used to obtain data useful in evaluating present practice and providing basis for decision (Mugenda & Mugenda, 2013).

This research therefore intended to collect data on opinions, habits and attitudes of secondary school staff and students on the existing status of fire disaster preparedness. This was in line with the major purpose of descriptive research design of describing the

state of affair as it existed (Kothari, 2004). This design was hence very useful in this regard.

3.4   The Research Study Area

The research area was Uasin Gishu County, Kenya. Uasin Gishu is among the 47 counties in Kenya. The county has six Sub-Counties namely; Ainabkoi, Kapseret, Kesses, Turbo, Soy and Moiben. It's generally an agricultural rural region and therefore the researcher will specifically consider schools in the rural areas and schools in the township of Eldoret. From the mainstream media incidences of fire safety concerns in secondary schools were a serious concern to parents, teachers and students in various parts of the country. This is true for parents, teachers and students in Uasin Gishu County. Research relating to fire disasters in secondary schools conducted in this area was limited. Therefore, this research area was the best suited to conduct the research on the assessment of fire disaster preparedness in secondary schools.

3.5   Target Population

Mugenda & Mugenda (2003) define target population as the population which the researcher intends to generalise the findings of this study. The difference between target population and the accessible population; the target population includes all cases that an investigator would consider to make generalization. The accessible population includes all the cases that meet the set-out criteria and accessible to the researcher (Polit & Hungler, 1999).

This research targeted all 166 public secondary schools, 1792 teachers, 166 principals, and 2732 form 3 and 4 students in Uasin Gishu County. From this group of individuals, samples was taken for measurement, observation and analysis.

3.6 Sample Size and Sampling Procedure

This study employed a stratified sampling technique to obtain a representative sample of principals, teachers, and students in secondary schools in Uasin Gishu County. This technique aimed at a proportionate representation with a view of accounting for the differences in sub-group characteristics (Oso & Onen, 2005). The technique was aimed to identify subgroups in the population and then samples were be obtained in the sub groups. A sample should neither be excessively large, nor too small and must fulfil the requirements of efficiency, representativeness, reliability and flexibility (Kothari, 2004).

This was significant because each member in the population had an equal opportunity of being selected, by ensuring each subgroup was represented by a sample. Sample size was obtained by the Yamane Taro (1973) formula for finite population. The formula for the sample was given in equation at the confidence interval of 95% with significance level of 5%.

The formula is given as

$$n = \frac{N}{1 + N(e^2)}$$

Where,

n = required sample size

N = population size

e = is the acceptable proportion of sample error in this case 0.05.

The sample obtained from the formula is in Table 2.

Table 3.1: The total sample size of the study

Category	Target population	Sample size
Secondary Schools	166	117
Head Teachers	166	117
Teachers	1792	327
Students	2732	349
Total	**4856**	**793(16%)**

3.7   Research Instruments

Burns and Grove (2001) identified Data collection as is the accurate and systematic gathering of information relevant to the specific objectives and questions of a study. The study variables are measured using a variety of techniques such as observation, interviews, observation schedule and questionnaires.

Data was collected using questionnaires that were administered to the principals, teachers and students in the secondary schools obtained from the sample. The research also employed observation checklist as a research instrument. The observation checklist was developed as attached in appendix F.

3.7.1   Collection of Quantitative Data

Quantitative data was collected by means of questionnaires administered to the principals, teachers and students. The questionnaires had both open-ended questions that required written responses and closed-ended questions that provided predetermined

options to the respondents. The use of questionnaires is flexible as the questions can be standardized (Keith, 2009).

3.7.2 Collection of Qualitative Data

Qualitative data was collected using one method of data collection in this study. That is observation using an observation checklist. This method was used to describe the context and phenomenon of fire disaster preparedness in secondary schools in Uasin Gishu County.

3.8   Instrument Validity

Orodho (2008) identifies validity of a test as a measure of how accurate a test measures its intended parameters. In this study construct validity was used. A measure is said to possess construct validity to the degree that it confirms to predicted correlations with other theoretical propositions. Construct validity refers to the extent to which the scores obtained from a test can be attributed to the underlying concepts and principles of a well-established theory. To assess construct validity, one has to link a series of additional statements or ideas to the outcomes generated by the measurement tool. If the data gathered from the created scale align as expected with these supplementary statements, we can infer the presence of construct validity. (Kothari, 2004). Construct, content and face validity of the questionnaire was determined by the help of experts, these are the supervisors in the School of Education, University of Eldoret. The input and the recommendations by the supervisors were used to improve the instruments.

3.9   Instrument Reliability

According to Mugenda and Mugenda (2003), reliability of an instrument is the degree of consistency with which it measures a variable. Piloting study was done to establish reliability of the instruments. This was determined by use of test-retest method.

The number of respondents for the pilot study should be between 9-10% of the sample population (Patton, 2002). In this study, the pilot sample size was; 3 secondary schools, 27 teachers, 3 principals, and 41 students. Each instrument was therefore first tested in three (3) randomly selected public secondary schools in Uasin Gishu County that were not in the study sample. This schools are AIC Chebisaas Boys, Kapsoya and Kahoya Secondary Schools. A period of three weeks was then allowed before the tools were administered again for a retest. Sampled responses from the test and the retest were analysed using means, frequencies and percentages that produced scores which helped check whether the two processes gave similar results. The scores were then be correlated using Pearson's Product Moment Correlation Coefficient as an estimate of reliability. The coefficient value of 'r' lies between -1 to +1, the closer the value is to +1, the stronger the congruence.

Pearson's coefficient of correlation (or r) * = $\sum (X_i\text{-}X) (Y_i\text{-}Y)$

$$\overline{\qquad\qquad}$$

$n.\ \sigma_{X.}\ \sigma_Y$

A zero value of 'r' indicates there isn't association between the two variables. When r = (+) 1, it indicates perfect positive correlation and when it is -1, it indicates perfect negative correlation, meaning thereby that variations in independent variable (X) explain

100% of the variations in the dependent variable (*Y*) (Kothari, 2004). From the pilot study, a coefficient value of 0.84 was obtained. According to Gay (2002), coefficient values between 0.6 and 0.9 determine the instrument reliability. Therefore the instruments reliability was good.

3.10   Data Collection Procedures

The researcher applied for the permit to conduct from the National Commission for Science, Technology and Innovation (NACOSTI). On getting the permit, the researcher proceed to the Uasin Gishu County Office of Education where he presented the authority letter to the County Director and the Sub-County Director of Education.

After obtaining relevant permissions the researcher then made a pre-visit to the secondary schools and requested permission from the principals to be allowed to talk to the other respondents; such the teachers and students. The researcher also informed all the respondents about his research and the actual date when to bring the questionnaires.

Prior to data collection day the researcher trained twelve research assistants. The researcher aware of the objectives of the study, and they understood the instruments so as to clarify statements if not clearly understood by respondents.

During the research, research assistants assisted in the distribution, administration and collection of questionnaires from the respondents and filling the observation schedule. This speeded the data collection process allowing the researcher to meet the research timelines. Afterwards the researcher collected the filled research tools for data analysis.

3.11   Data Analysis Techniques

According to Mugenda and Mugenda (2003), data analysis refers to examining what has been collected in a survey or experiments and making deductions and inferences. It involves uncovering underlying structures, extracting important variables, detecting any anomalies and testing any underlying assumptions.

The researcher inspected the filled questionnaires. After correcting any identified errors that could potentially influence data analysis, then it was coded. For example, the researcher allocated 1 to yes, 2 to no and 0 to do not know. After coding, the data was entered into the computer using excel package. Then the excel file was imported to the Statistical Package for Social Sciences (SPSS) for analysis. Then the data analysed both qualitatively and quantitatively. Analysis of quantitative data was done using descriptive statistics such as mean, mode, percentage and standard deviation and help to determine proportions, averages scores and variance for each set of scores in the sample. On the other hand, qualitative data was analysed based on theme as per study objectives.

3.12   Ethical Considerations

According to Streubert and Carpenter (1999), ethical principles must be followed when doing research. The principle of autonomy stipulates that there is right to self-determination and full disclosure (Polit & Hungler, 1999). Self-determination principle means that participants enjoy rights to make an independent decision on the kind of responses to give without being influenced.

The principle of voluntary participation proposes that respondents should not be coerced into participating in research. The researcher should therefore inform the respondents all about the study and get consent. The participants should be informed of what the study

involves so that they can make their own judgment on their involvement (Trochim, 2008).

The concept of anonymity posits that the participant in research will remain anonymous during the study (Punch, 1994). It was not necessary for the respondents to provide their names nor that of their schools. They were addressed using their designations such as students, Principals and teacher. The researcher also assured all the respondents of confidentiality. He also assured the respondents that their names and those of their institutions were confidential. The respondents participated voluntarily.

3.13   Summary

This chapter presents the methodology that was adopted in undertaking the study. This chapter clearly explained the research paradigm and the research design. Descriptive design was used to gather relevant data. All public secondary schools in Uasin Gishu County formed the target population. However, the researcher used stratified sampling technique to select the sample. 117 schools formed the sample, as it was impractical to conduct the study on the whole population targeted, given the concept of convenience, resource constraints and accuracy. Primary data was collected using questionnaires that was completed by the respondents and returned to the researcher. Data analysis was done using SPSS program.

CHAPTER FOUR

RESULTS

4.1   Introduction

This chapter focusses on data presentation, analysis, interpretation and discussion of the results. The main purpose of this chapter is to present the gathered data in a systematic way. Analysis of data was conducted using the Statistical Package for Social Sciences (SPSS). The principle in the presentation of data is to give all the evidences relevant to the research questions.

A sample size of 793 respondents, where 117 were principals and deputy principals, 327 were teachers and 349 were students was used. The gathered data was taken through the analysis process and the information presented in form of pie charts, bar graphs and tables. The interpretation and presentation of data was guided by the study objectives under the following sub-headings:

i.   Availability of fire disaster management programs in secondary schools

ii. Existence of fire disaster management trainings to students and staff in secondary schools

iii.   Adequacy of fire fighting equipment in secondary schools

iv. Compliance to fire safety policies set for construction of Education buildings

v. Availability of school based psychosocial programs in secondary schools

4.2   Questionnaire Return Rate

In this study, 117 questionnaires were given to principals/deputy principals, 327 were given to teachers and 349 were given to students. Sampled   through   various   methods

as enunciated in   chapter   three of this research.   The respondents were given a period of twenty one days to fill the questionnaires and after the twenty one days period, the researcher collected them through the research assistants.

Table 4.1: Respondents questionnaire return rate

Category	Total Questionnaires	Returned
Principals	117	73(62%)
Teachers	327	207(63%)
Students	349	268(77%)
Total	793	548(69%)

Of the 117 questionnaires issued to principals, only 73 questionnaires were returned. Of the 327 questionnaires issued to teachers, only 207 questionnaires were returned. Of the 349 questionnaires issued to students, only 268 questionnaires were returned. This represented a return rate of 62%, 63% and 77 % respectively. According to Best and Khan (2011), a response rate of 50% is believed to be sufficient, 60% good and above 70% very good. The return rate was therefore deemed as satisfactory and above the thresholds allowing continuation of analysis.

4.3   Demographic Information of the Respondents

The respondents were required to give demographic information as follows; the principals were required to give information on the length of their service as principals, length of service in their current stations and the type of their schools. The teachers were required to indicate the length of service as teachers and the length of service in their

current station. The students were required to give their gender, in which level they were,

length of stay in that school and the type of their school.

4.3.1 Demographic information on the gender of teachers and principals

On the gender of the 73 principals and 207 teachers the response were indicated in Table 4.2.

Table 4.2: Gender of Principals, teachers and students

Gender	Principals	%	Teachers	%	Students	%
Male	52	71.2%	129	62.3%	172	64.2%
Female	21	28.8%	78	37.7%	96	35.8%

The sampled population of principals was 71.2% male and 28.8% female. The sampled

population of teachers was 62.3% male and 37.7% female. The sampled population of

students was 64.2% male and 35.8% female.

Respondents

■ Male ■ Female
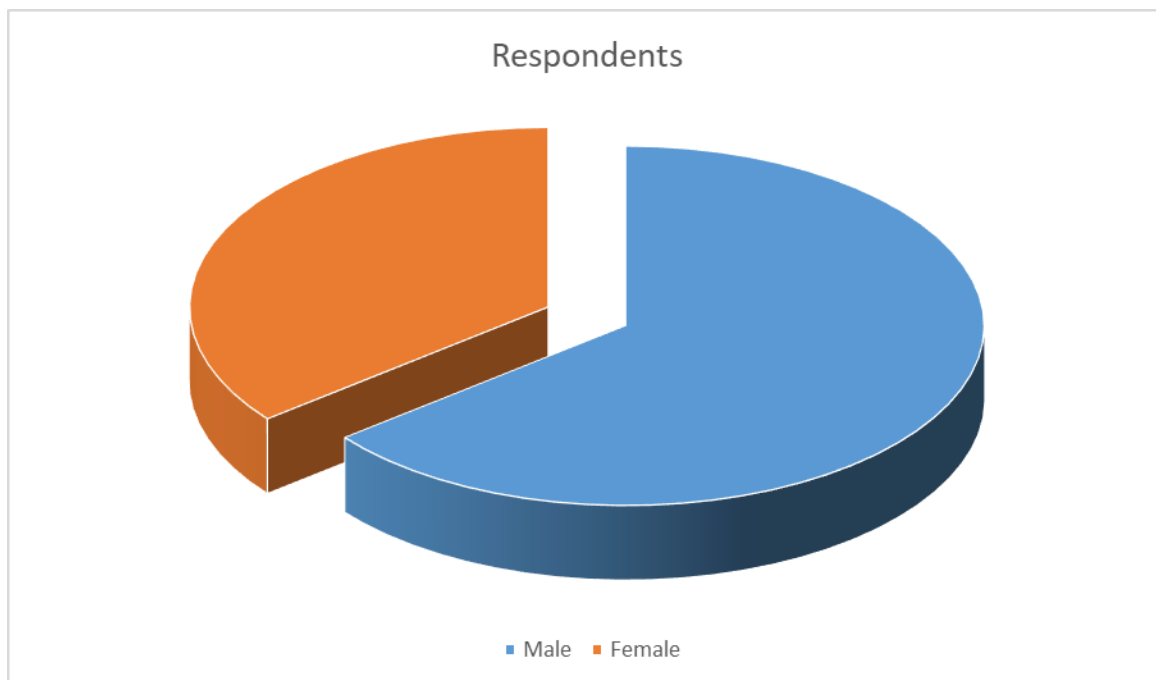
Figure 4.1: Gender of respondents

4.3.2 Demographic information on the length of time served as a teacher

On the time of service for the principals and the teachers, the response was as tabulated in

Table 4.3.

Table 4.3:Demographic information on the length of time served as a teacher

Time	Principals	%	Teachers	%
0-5yrs	-	-	56	27.1%
6-10yrs	23	31.5%	88	42.5%
Above 10yrs	50	68.5%	63	30.4%

Table 4.3 shows, 31.5% of the principals said that they had been principals for a period of

6 − 10 years. Therefore it shows that they had clear information about their school and

about safety expectation of education centres. 68.5% of the principals had served for a period of above 10 years. This was a very experienced population in student affairs and in fire safety of students. 27.1% of the sampled teacher population had served for a period of 0-5 years. This meant that they might not have had as much experience as the other teachers. 42.5% of the sampled teachers had served for 6-10 years. This sample was experienced with all the school activities and programs. 30.4% of the sampled teacher population had served for more than 10 years.

4.3.3 Demographic information on class of students

The students were asked to indicate the current class they were in and their responses were as indicated in Table 4.4 and Figure 4.2.

Table 4.4: Demographic information on the class of students

Class	Number of students	%
Form 3	93	34.7%
Form 4	175	65.3%

Figure 4.2: Class of the students
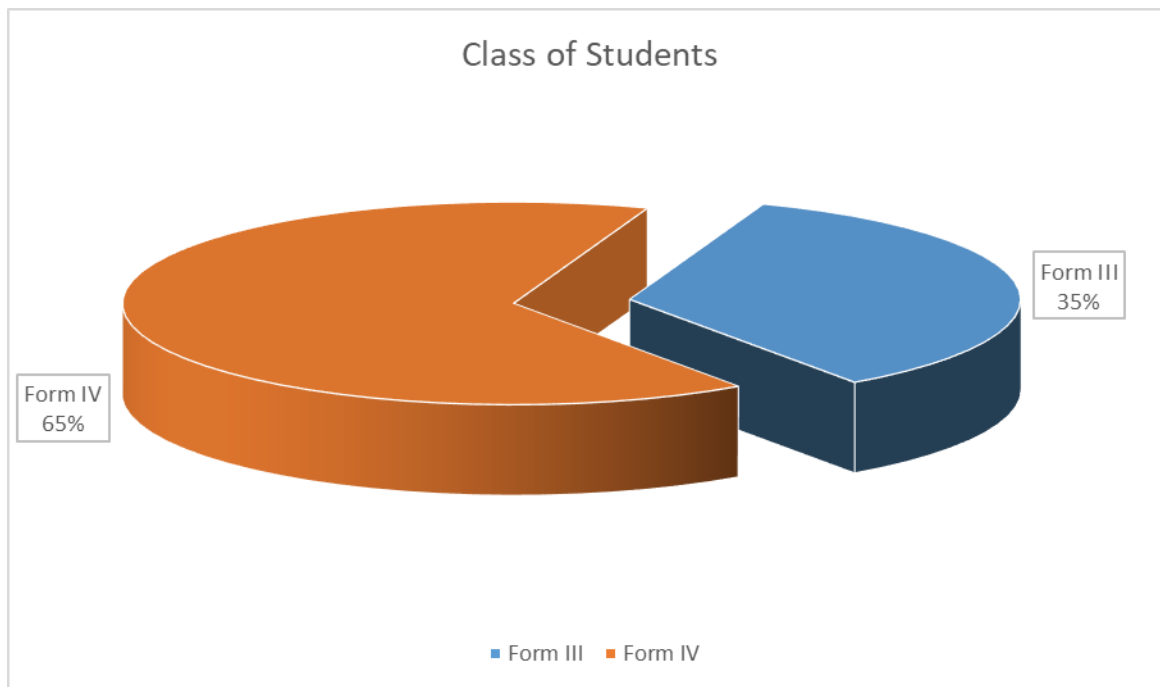
Figure 4.2: Class of the students

The sampled population of students was made of 65.3% form threes and 34.7% form fours. The form threes and form fours are well informed about school safety and school programs.

4.4 Availability of Fire Disaster Mitigation Programs in the Secondary Schools

The first objective was to determine the availability of fire disaster mitigation programs for secondary schools in Uasin Gishu County. The findings obtained were analysed and tabulated as indicated in Table 4.5.

4.4.1 Existence of fire evacuation plan

The principals and teachers commented on the availability of fire evacuation plan in the event of a fire disaster. The responses were tabulated in Table 4.5.

Table 4.5: Existence of fire evacuation plan

Response	Principals	%	Teachers	%	Students	%
Yes, but not in use	28	38.4%	30	14.5%	22	8.2%
Yes, and in use	35	47.9%	38	18.4%	70	26.1%
I don't know	1	1.4%	47	22.7%	172	64.2%
No, plans exist to have one	6	8.2%	66	31.9%	3	1.1%
No, we have no plans to have one	3	4.1%	26	12.6%	1	0.4%
Missing	0	0	1	0.4%	0	0

From the results obtained 1.4% of the principals and 22.7% of teachers unaware of availability of a fire evacuation plan for their schools. 38.4% of principals and 14.5% of teachers responded that their schools had a fire evacuation plan but it was not functional. 47.9% of principals and 18.4% of teachers responded that there was a fire evacuation plan and it was fully functional. 8.2% of principals and 31.9% of teachers responded that there was no fire evacuation plan but there was plans to have one. 4.1% of principals and 12.6% of teachers said that a fire evacuation plan didn't exist and they didn't have plans to have one.

The principals' responded, majority of them 47.9% indicated that the school had a fire evacuation plan. The schools that lacked a fire evacuation plans in place reported that there were plans available have one. This clearly indicated the efforts put forth by the government and the principals to make sure that the risk for fire disasters has been reduced. Fire disasters were resulted by failure to comply with any of the general safety or fire specific legislation (Furness & Muckett, 2007).

31.9% of the teachers indicated that there lacked fire disaster evacuation plans however plans underway to put them in place. 38.4% of principals indicated fire disaster evacuation plans were not in use. Most schools never used their fire evacuation plans. This due to the fact that most school haven't had fire disasters before. When the risk of fire disasters has materialised most school administration then realise the value of fire disaster evacuation programs and the need make them work before disasters occur. Therefore, without the experience of a fire in the past, most schools may not appreciate having and using an emergency plan.

64.2% of the students indicated they were unaware of fire disaster evacuation plan, while 26.1% indicated that fire disaster evacuation plan existed and was in use. The largest percentage of students were not aware on the existence of a fire evacuation plan. This means they may not know what do in case of a fire disaster therefore they may not benefit from this provision. Having such fire evacuation plans was identified by White (2011) as important because they increase the level of preparedness. On the availability of fire disaster mitigation programs for secondary schools, the MOE recommends that every school should post evacuation plans at every entrance and exit to buildings, classrooms, enclosed hallways, stairways and offices (MOE, 2008). Failure to have fire evacuation plans indicated that schools were ill-prepared to face fire disasters.

4.4.2 Evacuation plans for the vulnerable students

On evacuation plans for the vulnerable persons, the responses were as captured in Table 4.6.

Table 4.6: Evacuation plans for vulnerable persons

Response	Principals	%	Teachers	%	Students	%
Yes	14	19.2%	9	4.3%	77	28.7%
No	59	80.8%	198	95.7%	191	71.3%

The largest percentage of respondents of 80.8% principals, 95.3% teachers and 71.3%
students, said that evacuation plans for vulnerable persons was non-existent. It is
therefore safe to conclude that most schools in Uasin Gishu County, do not consider the
vulnerable persons in view of fire evacuation.

4.4.3 Effectiveness of fire emergency evacuation plans in schools

On the effectiveness of the fire emergency evacuation plan in schools the responses of
principals, teachers and students were as indicated in Table 4.7.

Table 4.7: Effective are the emergency plans for fire disaster in your school

Response	Principals	%	Teachers	%	Students	%
Very Effective	0	0%	2	1.0%	8	3.0%
Effective	3	4.1%	16	7.7%	22	8.2%
Moderately Effective	63	86.3%	161	77.8%	151	56.3%
Ineffective	4	5.5%	16	7.7%	60	22.4%
Very Ineffective	3	4.1%	12	5.8%	27	10.1%

In Table 4.7, 86.3% principals indicated that fire emergency plans were effective at a low degree. This implies that even if schools have in place emergency evacuation plans, they are not very effective. If a fire disaster were to occur, the disaster may not be easily averted. This indicates unpreparedness for fire disaster. This was seconded by 77.8% teachers and 56.3% students. In order for the schools to be prepared for fire disasters, the effectiveness of fire emergency evacuation plans has to be improved.

4.4.4 School has fire alert procedures

On whether schools had fire alert procedures the principals, teachers and students responded as indicated in Table 4.8.

Table 4.8: School has fire alert procedures

Response	Principals	%	Teachers	%	Students	%
Yes	18	24.7%	52	25.1%	55	20.5%
No	55	75.3%	155	74.9%	213	79.5%

Table 4.8 shows that 75.3% principals indicated that this schools did not have fire alert procedures. The lack of fire alarm in schools implies that, if a fire started, the people in the school at that moment may not be aware that there is a fire. Even if they would know by some means they may not know where the fire is and may be stranded not knowing what to do. This was seconded by 74.9% of teachers and 79.5% students. Only 24.7% principals, 25.1 teachers and 20.5% students indicated that fire alert procedures were available. This indicates that schools in Uasin Gishu County may not be adequately prepared for the next fire disaster.

4.4.5 Existence of fire assembly points

On availability of fire assembly points, the principals, teacher and students indicated as in Table 4.9.

Table 4.9: Existence of fire assembly points

Response	Principals	%	Teachers	%	Students	%
Yes	71	97.3%	198	95.7%	250	93.3%
No	2	2.7%	9	4.3%	18	6.7%

Of the 73 principals who participated in this study, 97.3% indicated that there existed fire assembly points in their schools, while 2.7% indicated that there lacked fire assembly points in their schools. This was seconded by 95.7% teachers and 93.3% students. This is significant because most school personnel would know where to assemble. This shows that a most schools have fire assembly points. This was an indication of improvement in the availability of fire assembly points compared to previous studies that indicated that most schools in Nyandarua South District, Kenya (Mwangi, 2014) didn't have clearly defined fire assembly points.

4.4.6 Existence of fire safety sub-committee

When asked to comment on the existence of a fire safety sub-committee in the schools, the principals, teachers and students indicated as in Table 4.10.

Table 4.10: Existence of fire safety sub-committee

Response	Principals	%	Teachers	%	Students	%
Yes	58	72.6%	175	84.5%	233	86.9%
No	15	27.4%	30	14.5%	35	13.1%
Missing Data			2	1.0%		

The researcher sought to establish from principals, teachers and students whether school safety sub-committee existed as required by the Ministry of Education. Of the 73 principals who participated in this study 72.6% of principals indicated that the school safety sub-committee was in place and functional. This was upheld by 84.5% of the teachers and 86.9% of the students. 27.4% of principals indicated not having a school safety sub-committee. According to Ministry of Education (2008) the specific functions of this committee are to;

- Identify the safety needs of the school and taking the necessary action.
- Mobilize the resources required by the school to ensure a safe, secure and caring learning environment.
- Monitor and evaluate the various aspects of School Safety with a view to enhancing school safety.
- Form sustainable networks with all stakeholders to foster and sustain School Safety.
- Keep learners, parents and other stakeholders informed about School Safety policies and implementation activities.

- Seek the support of parents and stakeholders and ensure their participation in activities relating to School Safety and constantly review issues of child safety in and around the school.

- Constantly review issues of child safety in and around the school.

In light of the foregoing, the absence of safety sub-committee in 27.4% of secondary school administrations in Uasin Gishu County, show the risk of fire disasters is still high. These schools have failed in the responsibility to nurture a fire disaster awareness and preparedness culture.

4.4.7 Existence of appointed teacher in charge of fire safety in school

When asked on existence of appointed teacher in charge of school fire safety, the principals, teachers and students responded as shown in Table 4.11.

Table 4.11: Existence of appointed teacher in charge of school fire safety

Response	Principals	%	Teachers	%	Students	%
Yes	64	87.7%	189	91.3%	244	91.0%
No	9	12.3%	18	8.7%	24	9.0%

Appointment of a teacher in charge of safety is one of the requirements of the Ministry of Education Safety Manual (MoE, 2008). The teacher in charge of safety is also a member of the school safety committee. 87.7% of principals said schools had an appointed teacher in charge of fire safety. This statement was reinforced by 91.3% of the teachers and 91.0% of the students. However 12.3% of the principals indicated that they lacked a teacher in charge of safety in their respective schools. This is a large percentage and it's

an indication that more needs to be done on the implementation of the Ministry of Education Safety standard manual that was issued to all schools.

4.4.8 Proposed ways to improve emergency fire evacuation plans

When asked to propose ways of improving fire emergency evacuation plans in the schools, the principals, teachers and students gave several responses that were coded thematically and analysed giving the results as shown in Table 4.12.

Table 4.12: Proposed ways to improve emergency fire evacuation plans

Response	Principal s	%	Teacher s	%	Students	%
Trainings and Fire drills	6	8.2%	62	30.0%	134	50.0%
More fire alert equipment	35	47.9%	79	38.2%	68	25.4%
Implement fire safety guidelines	32	43.8%	66	31.9%	66	24.6%

On recommendation to improve emergency fire evacuation plans 47.9% of the principals recommended that more fire alert systems be put in place. This was also recommended by 38.2% of the teachers. 43.8% of the principals recommended that all the fire safety guidelines be implemented fully this was also reinforced by 31.9% of the teachers. The students on the other hand were inclined on fire safety trainings and fire drills. This was recommended by 50.0% of the students and 30.0% of the teachers.

4.5   Availability of Fire Disaster Management Trainings

The second objective of this study was to determine whether secondary schools in Uasin

Gishu County conduct fire safety trainings for teachers, principals, students and other

workers as a fire disaster mitigation strategy. The results were obtained analysed and

tabulated as below;

4.5.1 Fire disaster management training for the principal, teachers, students and

other staff members

On fire disaster management training for the principal, teachers, students and other staff

members the respondents gave responses as indicated in Table 4.13.

Table 4.13: Availability of fire disaster management trainings

Response	Principals	%	Teachers	%	Students	%
Yes	40	54.8%	93	44.9%	88	32.8%
No	33	45.2%	144	55.1%	177	66.0%

On whether the teachers, students and the non-teaching staff have been trained on fire

disaster management, 54.8% of the principals indicated yes, while 45.2% indicated no.

Of the 207 teachers who took part in this study, 55.1% indicated that they had not been

trained on fire disaster management while 44.9% reported having received some training

on fire disaster management. 66.0% of the sampled students indicated they had not been

trained on fire disaster management. This figures show that there is still more to be done

regarding fire safety training.

4.5.2 Invite local fire department to give talks or demonstrations

On invitation of local fire department in schools to give talks and demonstrations, the principal, teachers and students responded as indicated in Table 4.14.

Table 4.14: Invite local fire department to give talks or demonstrations

Response	Principals	%	Teachers	%	Students	%
Yes	2	2.7%	2	1.0%	1	0.4%
No	7	9.6%	41	19.8%	36	13.4%
Once in a long time	9	12.3%	43	20.8%	35	13.1%
Not aware of such plans	55	75.3%	79	38.2%	155	84.7%

On invitation of local fire department in schools for training 75.3% of the principals indicated that they were not aware of such a plan. 9% indicated that this is something they knew to happen once in a long time while 9.6% indicated that it never happens. 2.7% of the principals however indicated that this is something they had done. 38.2% of teacher and 84.7% of students indicated that they were not aware of such plans. Only 1.0% of teachers and 0.4% of students indicated having experienced talks and demonstrations from the local fire department. This indicated that there were no trainings done by the experts.

4.5.3 Factors affecting the trainings on fire safety

On the factors that have impacted trainings on fire disaster management the respondents gave responses as indicated below in Table 4.15.

Table 4.15: Factors affecting the trainings on fire safety

Response	Principals	%	Teachers	%	Students	%
There has never been need to train	0	0%	19	9.2%	47	17.5%
It not inspected by education officers	34	46.6%	90	43.5%	77	28.7%
There has never been training materials	38	52.1%	79	38.2%	91	34.0%
It's not a MoE requirement	1	1.4%	16	7.7%	49	18.6%

The responses of 52.1% of principals indicated that the school lacked proper training materials on fire safety while 46.6% indicated that the ministry of education officers did not inspect on fire disaster management trainings. 38.2% of the teachers and 34.0% student responses also converged to reinforce the statement of the principals. Therefore, there were no inspections on fire safety and also the ministry of education did not provide training materials on fire safety. This undermines fire disaster preparedness.

4.5.4 Frequency of trainings on fire safety

On the matter of the frequency of fire disaster management trainings the principals, teachers and students gave the responses indicated on Table 4.16.

Table 4.16: Frequency of training on fire safety

Response	Principals	%	Teachers	%	Students	%
Yearly	9	12.3	39	18.8%	38	14.2%
Half yearly	22	30.1	71	34.3%	180	67.2%
Per Term	12	16.4	2	1.0%	4	1.4%
Never	30	41.1	95	45.9%	46	17.2%

On this matter of frequency of training on fire disaster management, 41.1% of principals indicated that it was never done. 30.1% of principals indicated that it was done half

yearly. 16.4% indicated that trainings were done once per term while, 12.3% indicated that trainings are done yearly. The information given by the principals was also correlated with what most teachers and students responded. Lack of fire disaster management training has been noted by other researchers to be a leading factor in worsening fire disasters in secondary schools since most students don't know what to do in case of a fire. Therefore it's imperative to conclude that fire disaster preparedness was still low.

4.5.5   Training Status of Teachers Students and Staff in Fire Disaster Risk Reduction

When asked to comment on the training status of specific school personnel the principals responded as follows in Table 4.17.

Table 4.17: The training status of specific school personnel in fire disaster risk reduction

	Strongly agree		Agree		Disagree		Strongly disagree		Total %
	N	%	N	%	N	%	N	%	
Students have been trained	0	**0**	24	**32.9**	28	**38.4**	21	**28.8**	**100**
Provision of written evacuation guide	0	**0**	28	**38.4**	29	**39.7**	16	**21.9**	**100**
Teachers are adequately trained	7	**9.6**	10	**13.7**	39	**53.4**	17	**23.3**	**100**
Kitchen staffs are well trained	5	**6.8**	41	**56.2**	19	**26.0**	8	**11.0**	**100**
Laboratory technicians are well trained	5	**6.8**	43	**58.9**	17	**23.3**	8	**11.0**	**100**
School drivers are well trained	0	**0**	52	**71.2**	7	**9.6**	9	**12.3**	**93.2**
School security personnel are well	0	**0**	19	**26.0**	33	**45.2**	16	**21.9**	**93.2**
School nurse is well trained	0	**0**	11	**15.1**	20	**27.4**	17	**23.3**	**65.8**

On the matter of students training in fire disaster risk reduction, 38.4% of the principals disagreed, 28.8% strongly disagreed while 32.9% agreed. This is a clear indication that student training on fire safety is not happening in most institutions. On the matter of provision of a written emergency evacuation guide, 39.7% of the principals disagreed, 21.9% strongly disagreed while 38.4% agreed.

On the question of teacher training 76.7% of the principals disagreed. Only 23.3% of the principals agreed. This indicated that though some teachers have been trained on fire disaster management there was still a huge population that had not been trained.

On the question of whether the kitchen staff and been trained on fire disaster management 52.2% of principals indicated that this had been accomplished, while 6.8% strongly agreed. This is an indication that most trainings on fire disaster management are focused on the kitchen staff. However, 23.3% of the principals disagreed while 11.0% strongly agreed. This indicated that in some few schools that kitchen staff are never trained on fire disaster management.

On the question of whether the school laboratory technicians have been trained on fire disaster management, 58.9% of the principals agreed that this was taking place while 6.8% strongly agreed. This is an indication also that laboratory technicians do receive fire disaster management trainings. However, 23.3% of the principals disagreed while, 11.0% strongly disagreed. This indicates in some institutions even the training of the laboratory technicians is a problem.

On the question of whether the school drivers were trained of fire disaster management, 71.2% of the principals agreed while 9.6% disagreed and 12.3% strongly disagreed. This

shows that school drivers are the most trained on fire safety in most schools while in some schools they haven't received any training.

On the matter of school security personnel being trained on fire disaster management, 45.2% disagreed while 21.9% strongly disagreed and 26.0% agreed. This is an indication that fire disaster management training for security personnel have been ignored and disregarded.

On the matter of training school nurse on fire disaster management, 39.2% of the principals left the question unanswered. The researcher assumed this is because the schools didn't have a nurse. 27.4% disagreed while 23.3% strongly disagreed. Only 15.1% agreed that the nurses were properly trained on fire disaster management. From the data, fire disaster management trainings are not conducted equally to all individuals in the schools. This observation was in line with the observations made by Ayonga (2016) and Mwangi (2014) who generalised that fire safety trainings were rarely done in secondary schools in Kenya. Hence, the schools were not adequately prepared as regards fire disasters.

4.5.6 Ability to operate a fire extinguisher in case of a fire disaster

When asked if they would be able to operate a fire extinguisher in case of a fire the principals, teacher and students responded as indicated in Table 4.18.

Table 4.18: Ability to operate a fire extinguisher

Response	Principals	%	Teachers	%	Students	%
Yes	63	86.3%	147	71.0%	26	9.7%
No	10	13.7%	60	29.0%	242	90.3%

From the data on table 4.5.6 above, 86.3% of the principals indicated that they would be able to operate a fire extinguisher if a fire were to start. However 13.7% of the principals indicated that they were not in apposition to operate a fire extinguisher if a fire erupted.

As for the teachers 71.0% indicated that they would operate a fire extinguisher if there was a fire. 29.0% indicated that they were not conversant with operating a fire extinguisher.

The data from the students was opposite of what the principal and teachers had responded. 90.3% of the student indicated that they couldn't operate a fire extinguisher. Only 9.7% indicted that they could operate a fire extinguisher. This figures are alarming especially on considering that most students were not aware of how to put out a fire.

4.5.7 Proposed ways to improve fire disaster management trainings

The principals, teachers and students suggested several ways that fire disaster management trainings can be improved. The responses were grouped into three themes and analysed. The results obtained are represented in Table 4.19 and figure 0-3 below.

Table 4.19: Proposed ways to improve fire disaster management trainings

Themes	Trainings be included in curriculum	%	Schools to conduct fire drills	%	Management to create awareness	%
Responses	206	37.5%	281	51.4%	61	11.1%

Of the entire population sampled 37.5% indicated that fire disaster management trainings should be included in the curriculum. 51.39% indicated that schools should conduct fire drills. 11.11% indicated that the school management should come up with methods of creating awareness on fire safety. The responses indicated that most school personnel felt that there was more to be done to improve fire safety in secondary schools.
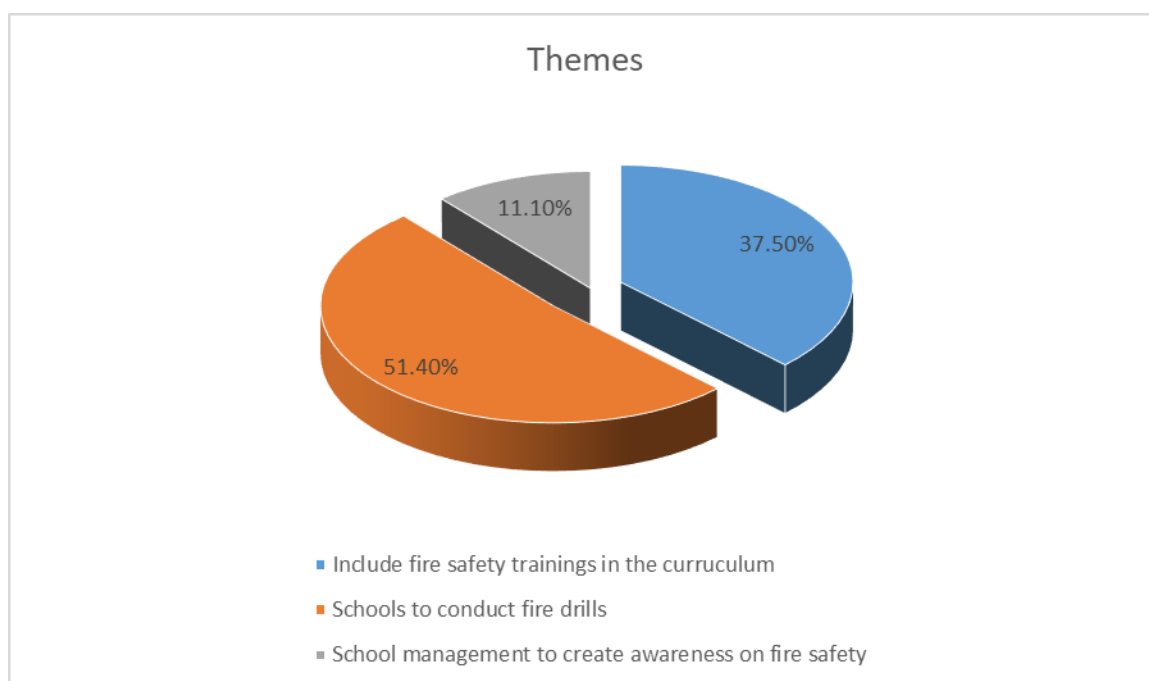
Figure 4.3: How to improve fire safety in secondary schools

4.6 Adequacy Fire fighting Equipment

The third objective of this study was to determine whether secondary schools in Uasin Gishu County have adequate fire fighting equipment. The principals, teachers and students were asked to comment on the adequacy of fire fighting equipment. The results were obtained analysed and tabulated as indicated in Table 4.20.

4.6.1 Response of Principals, teachers and students on adequacy of fire fighting equipment

Fire fighting equipment are very significant when it comes to fire disaster preparedness. Secondary schools must have enough fire fighting equipment in order to be regarded as prepared for fire disaster. The respondents were asked whether the fire fighting equipment in their schools were adequate and they responded as shown in Table 4.20.

Table 4.20: Adequacy of fire safety equipment

Response	Principals	%	Teachers	%	Students	%
Yes	10	13.7%	60	29.0%	27	10.1%
No	60	82.2%	110	53.1%	114	42.5%
I don't know	3	4.1%	37	17.9%	127	47.4%

As shown in Table 22, 82.2% of the principals indicated that fire fighting equipment were inadequate. 13.7% of the principals indicated that they didn't have enough while 4.1% indicated that they couldn't tell whether they had enough. Of the sampled population of teachers 53.1% indicated that the fire fighting equipment was inadequate. 29.0% indicated that they were adequate while 17.9% indicated that they couldn't tell whether

they were adequate on not. As for the students 47.45% couldn't tell whether fire fighting equipment was enough or not. 42.5% felt that it wasn't enough. 10.1% indicated that it was enough and they felt the equipment were adequate to combat fire.

From the data it clear that most secondary schools did not have enough facilities to fight fire in case of fire disaster. This is therefore an indicator that secondary schools in Uasin Gishu County are not well prepared to fight fire. It's safe to conclude this since 82.2% of principals felt that the schools were not well equipped to combat fire in case of a fire disaster. The Safety Standard Manual (2008) for schools recommends that schools be well equipped with fire fighting equipment.

4.6.2   Adequacy of specific fire fighting equipment

The respondents were asked to comment about the adequacy of specific Fire fighting equipment and their responses are recorded as in the Table 4.21.

Table 4.21: Adequacy of specific fire fighting equipment

Response on Adequacy of fire fighting equipment	Very Adequate		Adequate		Inadequate		Very Inadequate		Total %
	N	%	N	%	N	%	N	%	
Fire hydrants	2	**2.7**	7	**9.6**	9	**12.3**	55	**75.3**	**100**
Fire extinguishers	14	**19.2**	45	**61.5**	11	**15.1**	3	**4.1**	**100**
Fire resistive materials	0	**0**	30	**41.1**	26	**53.4**	17	**23.3**	**100**
Fire exits	14	**19.2**	45	**61.6**	11	**15.1**	3	**4.1**	**100**
Fire blankets	14	**19.2**	45	**61.6**	11	**15.1**	3	**4.1**	**100**
Fire protection devices	1	**1.4**	19	**26.0**	23	**31.5**	30	**41.1**	**100**
Fire escape ladder	1	**1.4**	23	**31.5**	19	**26.0**	30	**41.1**	**100**
Fire detectors	1	**1.4**	7	**9.6**	17	**23.3**	48	**65.8**	**100**
Fire alarms	14	**19.2**	39	**53.4**	13	**17.8**	7	**9.6**	**100**
Fire hose and nozzles	1	**1.4**	24	**32.9**	19	**26.0**	29	**39.7**	**100**
Fire fighters outfits	1	**1.4**	17	**23.3**	26	**35.6**	27	**37.0**	**100**
Fire sand bucket	14	**19.2**	40	**54.8**	14	**19.2**	5	**6.8**	**100**
Self-contained breathing apparatus	0	**0**	21	**28.8**	24	**32.9**	28	**38.4**	**100**
Reliable water supply	2	**2.7**	55	**75.3**	9	**12.3**	7	**9.6**	**100**

As indicated in table 23, the largest percentage (87.6%) of the respondents indicated that fire hydrants were inadequate. 76.7% indicated that use of fire resistance material was inadequate. 89.1% indicated that there was no use of fire detectors. Therefore, most specific fire safety equipment were inadequate. The adequate fire fighting equipment were; reliable water supply, fire extinguishers, fire blankets, sand buckets, fire exits and fire alarms in general. Reliable water supply is because Uasin Gishu is has a high water table that makes most schools have wells for water during dry seasons. Fire exits are adequate because most of the schools are built in accordance to the government requirements on school buildings. The others were mainly inadequate or very inadequate. This was an indication that most schools in Uasin Gishu County were unprepared for fire disasters when it comes to adequacy of fire fighting equipment.

4.6.3 Existence of internal inspections on fire safety equipment

The principals, teachers and students were asked to comment on existence of internal fire safety equipment inspections, their responses were as indicated in Table 4.22.

Table 4.22: Existence of internal inspections on fire safety equipment

Response	Principals	%	Teachers	%	Students	%
Yes	64	87.7%	77	37.2%	9	3.4%
No	9	12.3%	130	62.8%	259	96.6%

As indicated in Table 4.22, 87.7% of the principals reported that there were internal fire safety inspections this was contradicted by 62.8% teachers and 96.6% students who indicated that internal fire safety equipment inspections were unavailable. This means the condition of fire safety equipment wasn't being continuously monitored. This was in line

with the findings of Akali Khabamba and Muyinga (2009) who found out that fire fighting facilities are rarely inspected or serviced. It's safe to make this conclusion since the teachers and students would have been aware of ongoing internal monitoring of fire safety equipment.

Fire safety equipment internal inspections are significant part of fire safety preparedness since they ensure that fire safety systems are in good working condition always. Schools without internal fire safety inspection, would suffer greatly if fire disaster were to happen and the fire safety systems fail to work as expected.

4.6.4 Proposed fire fighting equipment to be added in the school to improve fire disaster preparedness

The principals, teachers and students suggested several fire fighting equipment to be added to the secondary school to enhance fire disaster preparedness. The responses were grouped into three themes and analysed. The results obtained are represented in Table 4.23.

Table 4.23: Proposed fire safety equipment to be added in the school

Response	Principals	%	Teachers	%	Students	%
Fire detection system	37	50.7%	132	63.8%	48	17.9%
Automatic fire suppression systems	13	17.8%	52	25.1%	141	52.6%
Manual fire suppression systems	23	31.5%	23	11.1%	79	29.5%

From the results 50.7% of the principals and 63.8% of the teachers proposed that fire detection system was the most significant fire fighting system to be added in critical areas in the schools. 31.5% of the principals and 11.1% of teachers proposed that

manual fire suppression systems be added to the schools. 25.1% of teachers and 17.8% of principals proposed that automatic fire suppression systems be added to the schools.

As for the students 52.6% proposed that automatic fire suppression systems be added in the schools. 29.5% proposed that manual fire suppression systems be added while 17.9% suggested fire alarm systems be added in the schools. Schools in Uasin Gishu County were found to be in need of more support to be adequately equipped with fire safety systems that in most cases were not available.

4.7 Construction of School Buildings in Line with MOE Guidelines

The fourth objective of this study was to determine the extent to which school buildings have been constructed in accordance to policy provisions pertaining to fire disaster risk reduction from the Ministry of Education. In an attempt to fulfil this objective, the researchers employed items as discussed below;

4.7.1 Schools have MOE guidelines on fire safety policies set for construction of Education buildings

The principals and teachers were asked to confirm whether their schools had Ministry of Education guidelines in place. The responses were as indicated in Table 4.24.

Table 4.24: Availability of M.O.E guidelines on construction of Education buildings for fire safety

Response	Principals	%	Teachers	%
Yes	60	82.2%	125	60.4%
No	13	17.8%	82	39.6%

From Table 4.24, 82.2% of principals indicated that the Ministry of education guidelines on construction of school buildings existed in their schools, this was the same for 60.4% of teachers. However, 17.8% of principals and 39.6% of teachers indicated that the Ministry of Education guidelines on construction of school buildings did not exist in their schools. Since most schools had the MOE guidelines on construction of school buildings, it's safe to conclude that the MOE had done its part in disseminating fire safety information.

4.7.2 The degree of implementation of MOE guidelines on fire safety policies set for construction of Education buildings

The principal and the teachers were asked to assess the level of implementation of MOE guidelines on fire safety policies set for construction of Education buildings in schools. The responses were as indicated in Table 4.25.

Table 4.25: Implementation of MOE construction guidelines on Education buildings

Response	Principals	%	Teachers	%
Fully implemented	0	0%	21	10.1%
Partially implemented	55	75.3%	128	61.8%
Minimum implemented	12	16.4%	42	20.3%
None implemented	6	8.2%	16	7.7%

Of the 73 sampled population of principals 75.3% indicated that the Ministry of education guidelines on construction of school buildings were only partially implemented. This was supported by 61.8% of teachers. 16.4% of principals and 20.3% of teachers indicated that the implementation was at minimum. 8.2% of principals and 7.7% of teachers felt that the guidelines had not been implemented.

This data indicates that the implementation of Ministry of education guidelines on construction of school buildings have not been fully implemented. There is therefore need to establish the factors influencing the implementation of Ministry of education guidelines on construction of school buildings in Uasin Gishu County.

4.7.3 Availability of fire exits in the buildings in your school

When asked on availability of accessible fire exits in the buildings in the schools, the principals, teacher and students responded as indicated in Table 4.26.

Table 4.26: Availability of fire exits in the buildings in your school

Response	Principals	%	Teachers	%	Students	%
Yes and accessible to all	20	27.4%	28	13.5%	59	22.0%
Yes but not accessible to all	33	45.2%	88	42.5%	70	26.1%
No but there are plans to install	17	23.3%	63	30.4%	81	30.2%
No and there are no plans to install	3	4.1%	28	13.5%	57	21.3%

From Table 4.26, 72.6% of the principals indicated that the schools had fire exits. However, 27.4% of principals were of the view that the fire exits were always accessible to all while, 45.2% of the principals felt that the fire exits were not accessible to all. This shows that not all schools have provided accessible fire exits.

This same trend was see where 13.5% of teachers and 22.0% of students indicated that fire exits were always accessible to all. 42.5% of teachers and 26.1% of the students felt that that the fire exits were not accessible to all.

23.3% of principals, 30.4% of teachers and 30.2% of students indicated that fire exits did not exist but there were plans to avail them. 4.1% of principals, 13.5% of teachers and 21.3% of students indicated that fire exits did not exist in their schools and there were no apparent plans to install them. This indicates that schools in Uasin Gishu County are not fully prepared for the next fire disaster.

4.7.4 Availability of specific construction guidelines

The principals were asked to comments on the status of specific Ministry of education guidelines on construction of 0school buildings. Table 4.27 indicates the responses obtained.

Table 4.27: Principals' response on availability of specific construction guidelines

Response	Strongly agree		Agree		Disagree		Strongly disagree		Total %
	N	%	N	%	N	%	N	%	
Fire exits are always clear from obstruction	14	**19.2**	45	**61.6**	11	**15.1**	3	**4.1**	**100**
Fire extinguishers are in accessible positions	14	**19.2**	45	**61.6**	11	**15.1**	3	**4.1**	**100**
Combustible materials are not used as decorations	60	**82.2**	10	**13.7**	3	**4.1**	0	**0**	**100**
Halls have emergency exit and fire extinguishers	66	**90.4**	7	**9.6**	0	**0**	0	**0**	**100**
Windows in dormitories have no grills	39	**53.4**	13	**42.5**	10	**13.7**	2	**2.7**	**100**
The doors swing out outwards	30	**41.1**	31	**42.5**	10	**13.7**	2	**2.7**	**100**
Boarding facilities have not been designed to lock in students	19	**26.0**	22	**30.1**	22	**30.1**	10	**13.7**	**100**
Laboratories and library have fire fighting equipment	23	**31.5**	17	**23.3**	15	**20.5**	18	**24.7**	**100**
Students can easily escape from class in case of a fire disaster	8	**11.0**	30	**41.1**	17	**23.3**	18	**24.7**	**100**
Offices have fire fighting equipment	2	**2.7**	33	**45.2**	15	**20.5**	23	**31.5**	**100**
Kitchen have fire fighting equipment	23	**31.5**	27	**37.0**	12	**16.4**	11	**15.1**	**100**

According to Table 4.27, 53.4% of principals strongly agreed that windows in the school have not been grilled. 41.1% strongly agreed that, exit doors in buildings in the school open outwards. 90.4% strongly agreed that halls have emergency doors and fire extinguishers and are accessible. The laboratory, kitchen and offices lacked enough fire fighting equipment according to 68.5% of principals.

43.8 % of principals disagreed that the boarding facilities were not designed to lock students from the outside. This same trend was also seen when principals were asked whether students would easily escape the class during a fire disaster. 23.3% of the principals disagreed while 24.7% strongly disagreed. This factors indicate that there is still a huge gap of compliance to accessibility and escape routes.

From Table 4.27, schools in Uasin Gishu County were found to have low level of fire disaster preparedness. This was also a clear indication that the safety standards manual produced by the Ministry of Education (2008) had not been fully implemented by the principals of the schools.

4.7.5 Students response on specific construction guidelines

The students were also asked to respond on specific construction guidelines. The responses were analysed and tabulated in Table 4.28.

Table 4.28: Students response on availability of specific construction guidelines

Response in training status	Strongly agree		Agree		Disagree		Strongly disagree		Total %
	N	%	N	%	N	%	N	%	
Fire exits are always clear from obstruction	33	**12.3**	131	**48.9**	28	**10.4**	75	**28.0**	**100**
Fire extinguishers are in accessible positions	33	**12.3**	131	**48.9**	28	**10.4**	75	**28.0**	**100**
Combustible materials are not used as decorations	150	**56.0**	83	**31.0**	26	**9.7**	9	**3.4**	**100**
Halls have emergency exit and fire extinguishers	86	**32.1**	108	**40.3**	46	**17.2**	28	**10.4**	**100**
Windows in dormitories have no grills	36	**13.4**	91	**34.0**	50	**18.7**	91	**34.0**	**100**
The doors swing out outwards	33	**12.3**	131	**48.9**	28	**10.4**	75	**28.0**	**99.6**
Boarding facilities have not been designed to lock in students	1	**0.4**	124	**46.3**	84	**31.3**	53	**19.8**	**97.8**
Laboratories and library have fire fighting equipment	7	**2.6**	97	**36.2**	51	**19.0**	97	**36.2**	**94.0**
Students can easily escape from class in case of a fire disaster	40	**14.9**	110	**41.0**	79	**29.5**	39	**14.6**	**100**
Offices have fire fighting equipment	42	**15.7**	109	**40.7**	74	**27.6**	43	**16.0**	**100**
Kitchen have fire fighting equipment	42	**15.7**	108	**40.3**	74	**27.6**	44	**16.4**	**100**

The responses collected from the students indicated that, 34.0% strongly disagreed and 18.7% disagreed on the matter of windows in the school not being grilled. 10.4% of the students disagree and 28.0 strongly disagreed on the question that exit doors in buildings in the school swing outwards.

On the question of whether classes had been constructed in a way that students and teachers easily escape in case of fire 29.5% of the students disagreed while 14.6 of the students strongly disagreed. The laboratory, kitchen and offices lacked enough fire fighting equipment according to 76.5% of the students.

These findings from the students indicate that schools in Uasin Gishu County have not fully prepared for fire disasters. Though, the findings also indicated that much effort that has been put in place to ensure school buildings are safe. This is in comparison with previous studies.

4.7.6 Suggested ways to improve fire disaster preparedness in school buildings

The principals, teachers and students suggested the ways to improve fire disaster preparedness in school buildings. The methods suggested were grouped into themes and analysed as indicated in Table 4.29 and Figure 4.4.

Table 4.29: Suggested ways to improve fire disaster preparedness in school buildings

Themes	Reduce combustible materials in buildings	%	Provide fire escape routes	%	Repair Electricals	%
Responses	105	19.2%	353	64.4%	90	16.4%
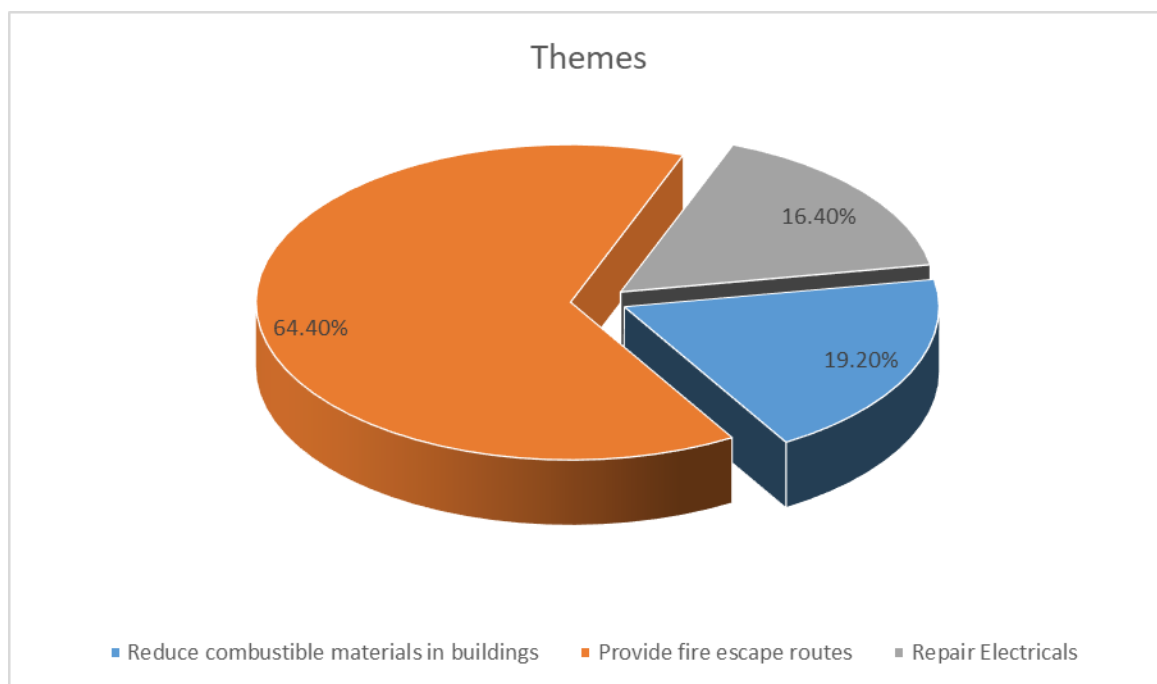
Figure 4.4: Ways suggested to improve fire disaster management in school buildings

From Figure 4.4, 64.38% of the respondents indicated it was significant to provide fire escape routes to the students, teachers and non-teaching staff in schools. 19.18% of the respondents indicated that there was need to provide proper storage for any combustible materials in the school and also reduce combustible materials in school buildings. 16.44% of the respondents focused on proper school buildings maintenance including repair of electrical system. These areas are significant in order to attain fire disaster safety.

4.8   Availability School Based Psychosocial Fire Disaster Preparedness Programs

The fifth objective was to determine whether secondary schools in Uasin Gishu County had school based psychosocial programs to reduce arson. The principals, teachers and students were asked to comment on the availability of school based psychosocial programs. The results were obtained analysed, tabulated and discussed as below;

4.8.1 Existence Cases of Groupings or Gangs and Mass Indiscipline

The principals, teachers and students were asked to comment on existence of cases of groupings or gangs and mass indiscipline in schools. The responses were analysed and tabulated as indicated below in Table 4.30.

Table 4.30: Responses to Existence of cases of groupings and mass indiscipline

Response	Principals	%	Teachers	%	Students	%
Yes	55	75.3%	111	53.6%	205	76.5%
No	18	24.7%	96	46.4%	63	23.5%

From Table 4.30, 75.3% of the principals, 53.6% of the teachers and 76.5% of students agreed that students formed some groups of gangs in schools. However 24.7% of principals 46.4% of teachers and 23.5% of students disagreed on this matter. It's therefore safe to conclude that formation of gangs or influence groups in schools is a frequent occurrence affecting most students in schools in Uasin Gishu County. According to the Crowd behaviour theory individuals gathered together in a group suffer collective racial unconscious which supersede the individual sense of responsibility. Such group exert a hypnotic influence to their members thereby prompting them to behave irrational because of the charged behaviour (Liebling, 2012). Since there were existence of groupings and mass indiscipline amongst students, there was a high risk of arson.

4.8.2 How mass grouping and mass indiscipline are handled

The principals, teachers and students were further asked to comment on how the cases of groupings or gangs and mass indiscipline in schools were handled. The responses were grouped into two themes, analysed and tabulated as indicated in Table 4.31.

Table 4.31: How mass grouping and mass indiscipline are handled

Response	Principals	%	Teachers	%	Students	%
Corporal punishment/Suspension	58	79.5%	163	78.7%	240	89.6%
Guidance and counselling	15	20.5%	44	21.3%	28	10.4%

The responses from 79.5% of principals, 78.7% of teachers and 89.6% of students responded that any student gang is normally taken through a disciplinary process which end up with the students being suspended. 20.5% of the principals, 21.3% of teacher and 10.4% of the students indicated that these students were taken through a guidance and counselling process.

4.8.3 Students Involvement in Institution Management and Formation of school rules

On the question of the involvement of students in formation of school rules and participation in school management, the principals, teachers and students responded as indicated in Table 4.32.

Table 4.32: How students are involved in school management

Response	Principals	%	Teachers	%	Students	%
Through Prefects	37	50.7%	106	51.2%	46	17.2%
Through peer leaderships	34	46.6%	64	30.9%	93	34.7%
Students are not involved	2	2.7%	37	17.9%	129	48.1%

From the responses, 50.7% of the principals, 51.2% of the teachers and 17.2% of the students indicated that the prefects were the main channel for students' management of school affairs. 46.6% of principals, 30.9% of teachers and 34.7% of students indicated that peer leadership was encouraged in their schools and was used as the main channel for students managing the schools. A majority of students at 48.1% however indicated that students were never involved in school rules formation and school management, this was supported by 2.7% of principals and 17.9% of teachers.

4.8.4 Method of selecting student leaders is school

The principals, teachers and students were further asked to comment on the method of selecting student leaders in schools. The findings were tabulated as indicated in Table 4.33.

Table 4.33: Method of selecting student leaders is school

Response	Principals	%	Teachers	%	Students	%
Selection by teachers	13	17.2%	98	47.3%	218	81.3%
Student Performance and Merit	48	65.8%	39	18.8%	23	8.6%
Democratic election	12	17.0%	70	33.8%	27	10.1%

From the responses, 65.8% of the principals indicated the student leadership was mainly based on the merit of the students. This means that student leaders are mostly selected by the teachers and this was supported by 47.3% of teachers and 81.3% of the students. On the choice of democratic elections only 17.0% of the principals, 33.8% of teachers and 10.1% of the students who agreed that the student leader selection was done democratically. This indicates that most students may have dissatisfaction in the leaders endorsed by the management.

4.8.5   Availability of school based guidance and counselling sessions

The researcher sought to establish whether guidance and counselling sessions were available at schools. The responses obtained are as indicated in Table 4.34.

Table 4.34: Existence of school based guidance and counselling sessions

Response	Principals	%	Teachers	%	Students	%
Yes	58	79.5%	162	78.3%	105	39.9%
No	15	20.5%	44	21.3%	163	60.1%

When asked to comment on availability of guidance and counselling sessions in their schools 79.5% of the principals, 78.3% of the teachers and 39.9% of the students indicated that the guidance and counselling sessions were available. This was contradicted by 20.5% of the principals, 21.3% of the teachers and 60.1% of the students. 60.1% of the students rejected the narrative that guidance and counselling existed and further explained on the questionnaires that the guidance and counselling ended up being a religious discourse.

In view of this the researcher concluded that guidance and counselling only existed in few schools in Uasin Gishu County. Even in these few schools the quality and professionalism of guidance offered was below standard.

4.8.6   Surveillance methods to monitor student's behaviour

The principals, teachers and students were asked to comment on surveillance methods employed by their school management to monitor the behaviour of students. The findings were tabulated as indicated below in Table 4.35.

Table 4.35: Existence of school surveillance methods to monitor student behaviour

Response	Principals	%	Teachers	%	Students	%
CCTV	14	19.2%	41	19.8%	10	3.7%
Student Reporters	37	50.7%	109	52.7%	169	51.7%
Suggestion box	9	12.3%	21	10.1%	25	9.3%
Teachers	13	17.8%	36	17.4%	64	29.9%

From Table 4.35, 50.7% of principals, 52.7% of teachers and 51.7% of students indicated that the main method of student surveillance was by use of students' reporters that would convey information to the management. Among the teachers the least popular method of surveillance was the use of suggestion box while among the students it was the use of CCTVs. Students behaviour changes while they know that they are under surveillance but the method used can also be counterproductive. While under surveillance students are less likely to cause school fires.

It is of particular interest that use of students' reporters to monitor behaviour of students was very popular in schools in Uasin Gishu County. This method has frequently created personal differences among students and is likely to be counterproductive. Since schools in Uasin Gishu County employed a risky method of surveillance, they were therefore found to be inadequately prepared for fire disaster regarding student's surveillance methods.

4.8.7   Students in your school aware that arson is a crime punishable by law

The principals, teachers and students were asked to comment on whether the students in their school were aware that arson is a crime punishable by the law of Kenya. The findings were tabulated as indicated below in Table 4.36.

Table 4.36: Students awareness that arson is a crime punishable by law

Response	Principals	%	Teachers	%	Students	%
Yes	58	79.5%	163	78.7%	240	89.6%
No	15	20.5%	44	21.3%	28	10.4%

On the matter of awareness that arson is a crime punishable by law, the researcher found out that most students were aware. This was validated by the response of 79.5% of principals, 78.7% of teachers and 89.6% of the students. However, a population of 10.4% of the students were ignorant on that subject. This was equally supported by the responses of 20.5% of principals, 21.3% of teachers.

From this data it was clear that students had been properly oriented on school rules and the law of the land which they are bound to follow. However there was more to be done to ensure 100% awareness of fire disaster crimes among the students. This indicated that

schools in Uasin Gishu County had a routine to ensure proper orientations to school rules were done and therefore prepared for arson related fire disasters.

4.8.8 Students in our school have access to mainstream media and social media

The principals, teachers and students were asked to respond on whether students had access to mainstream media and social media during schools sessions. This was followed by an inquiry on the possible impact and results of news of fires in other schools to the students. The findings were tabulated as indicated below in Table 4.37 and Table 4.38.

Table 4.37: Students have access to mainstream media and social media

Response	Principals	%	Teachers	%	Students	%
Yes	64	87.7%	167	80.7%	252	94.1%
No	9	12.3%	40	19.3%	16	5.9%

87.7% of principals, 80.7% of teachers and 94.1% of students confirmed that students though one means or another were able to access mainstream media and social media. Only a small population of students that couldn't access the media as indicated by 12.3% of principals 19.3% of teachers and 5.9% of students. The researcher further confirmed the impact of access to the media on students. The information obtained was analysed and tabulated in Table 4.38.

Table 4.38: Reaction of students to news of fires in other schools

Response	Principals	%	Teachers	%	Students	%
Causes tension to students	43	58.9%	113	54.6%	77	28.7%
Causes imitation of arson and sympathy in students	29	39.7%	60	29.0%	90	33.6%
No effect	1	1.4%	34	16.4%	101	37.7%

Principals and teachers indicated that this news created tension in schools as responded by 58.9% of principals and 54.6% of teachers. This was however refuted by some of the students who indicated that this news had insignificant effect on them as declared by 37.7% of the students. The researcher therefore concluded that news about school fires had effect to both students, teachers and the management.

This scenario was supported by the fact that a small population of principals felt that the news had no apparent effect to the students. 39.7% of principals, 29.0% of teachers and 33.6% of students indicated that there was a high likelihood of the students sympathising with the burnt schools and copying the same in their schools. The suspicion of sympathising students burning the school, may in turn probably result to different a treatment of students and probable investigations due to the suspicion that would in turn cause more stress to the students.

The researcher noted that there would be need to research on the effect of news of school fires to the principals, teachers and students and how the teachers treated the students once the schools fire trends started.

4.8.9 Existence and use of abusive and dehumanizing language/treatment by teachers towards students

The principals, teachers and students were asked to respond on whether there existed use of abusive and dehumanizing language towards students in secondary schools. This was followed by an inquiry on the countermeasures taken by the school management where such cases existed. The results obtained were tabulated in Table 4.39 and Table 4.40.

Table 4.39: Use of abusive and dehumanizing language and treatment by teachers to students

Response	Principals	%	Teachers	%	Students	%
Yes	48	65.8%	101	48.8%	252	94.0%
No	25	34.2%	106	51.2%	16	6.0%

When asked about existence and use of abusive and dehumanizing language by teachers in the schools, 65.8% of principals, 48.8% of teachers and 94.0% of students indicated that this has been happening. It is of particular interest that only 6.0% of students disagreed with this. The large population of students indicate that the problem is huge in secondary schools in Uasin Gishu County. 34.2 % of principals disagreed as did 51.2% of teachers. Malenya (2016) identified oppression by the school administration and the experience of student dehumanisation as a fundamental cause of student violence and arson in schools. Since dehumanisation of students is a significant factor of students' violence the article indicated that a process of humanisation was the solution. The process of humanisation therefore is an indicator of fire disaster preparedness. The researcher followed up on how this issues were solved. The responses were analysed and tabulated as in Table 4.40.

Table 4.40: Countermeasures for use of abusive and dehumanizing language by teachers

Response	Principals	%	Teachers	%	Students	%
Reconciliation with the teachers	26	35.6%	61	29.5%	25	9.3%
Correction of the teachers	42	57.5%	80	38.6%	81	30.2%
Ignored by management	5	6.8%	54	26.1%	162	60.4%
Missing	0	0	12	5.8%	0	0

From the responses obtained 57.5% of the principals, 38.6% of teachers and 30.2% of students indicated that the teachers were regularly corrected by the management when they were found out of line. 35.6% of principals, 29.5% of teachers and 9.3% of students indicated that there were some form of reconciliation between the teachers and the management. Reconciliation is the best known method of conflict resolution.

Sadly though 60.4% of the students indicated that this issues were ignored by the management even on reporting. This was supported by 6.8% of the principals and 26.1% of the teachers. It is also worth to note that 5.8% of the teachers didn't respond on this particular question. When dehumanisation of students by teachers is ignored the affected students, go in a quest for justice and revenge that is likely to be violent.

4.8.10 Specific psychosocial programs available in schools to reduce arson

The principals were asked to respond on status of specific psychosocial programs in the schools. The responses were analysed and tabled as indicated in Table 4.41.

Table 4.41: Principals responses on status of specific psychosocial programs in schools

Response	Strongly agree		Agree		Disagree		Strongly disagree		Total %
	N	%	N	%	N	%	N	%	
Teachers use proper language	26	**35.6**	32	**43.8**	12	**16.4**	3	**4.1**	**100**
All students are treated fairly	32	43.8	37	**50.7**	4	**5.5**	0	0	**100**
Action is taken for student rights abuse	26	**35.6**	44	**60.6**	3	**4.1**	0	**0**	**100**
Any noted use of drugs by students	13	**18.3**	22	**31.0**	19	**26.8**	17	**23.9**	**100**
Whistle blowing/tip-offs avenues exist	26	**35.6**	42	**57.5**	5	**6.8**	0	**0**	**100**
There are cases of mass indiscipline	12	**16.4**	25	**34.2**	36	**49.3**	0	**0**	**100**
Teachers get guidance and counselling trainings	21	**28.8**	39	**53.4**	13	**17.8**	0	**0**	**100**
I have read government reports on causes of arson in schools	8	**11.0**	30	**41.1**	17	**23.3**	18	**24.7**	**100**

The principals indicated that teachers in general use proper language to address students as indicated by 35.6% and 43.8% of the principals. This is a positive indicator. However, 20.5% of the principals disagreed. The principals also unanimously agreed that students were treated fairly in general.

The principals also indicated that they had provided whistleblowing avenues for the students to communicate with the management anonymously. This was agreed by 93.1% of the principals. The medium percentage of principals indicated that drug use is a concern in their schools.

Principals also agreed that teachers had received some in-service and refresher trainings on guidance and counselling. This was strongly agreed by 28.8%, agreed by 53.4% and disagreed by 17.8% of the principals. The same question was posed to teachers where 17.4% strongly agreed, 30.9% agreed, 44.4% disagreed and 6.3% strongly disagreed. The teachers clearly showed that the in-service and refresher trainings on guidance and counselling were rarely done.

The principals were finally asked to indicate whether they had read the government reports on causes of school fires. 11.0% strongly agreed, 41.1% agreed, 23.3% disagreed and 24.7% strongly disagreed. This indicated that a good number of principals approximately 48% had not read government reports on causes of school fires and therefore may not have been aware of the causes of fire disasters in secondary schools. This indicates lack of preparedness for fire disasters.

4.8.11 Suggested ways to achieve fire disaster preparedness

The respondents suggested ways to reduce the frequency of fire disasters in schools. The responses were analysed thematically as presented in Table 4.42 and Figure 4.5.

Table 4.42: Suggested ways to achieve fire disaster preparedness

Themes	Improve handling of students affairs	%	Train teachers and students on fire safety	%	Provide avenues for solving teacher student problems	%
Responses	113	20.7%	208	37.8 %	227	41.5%
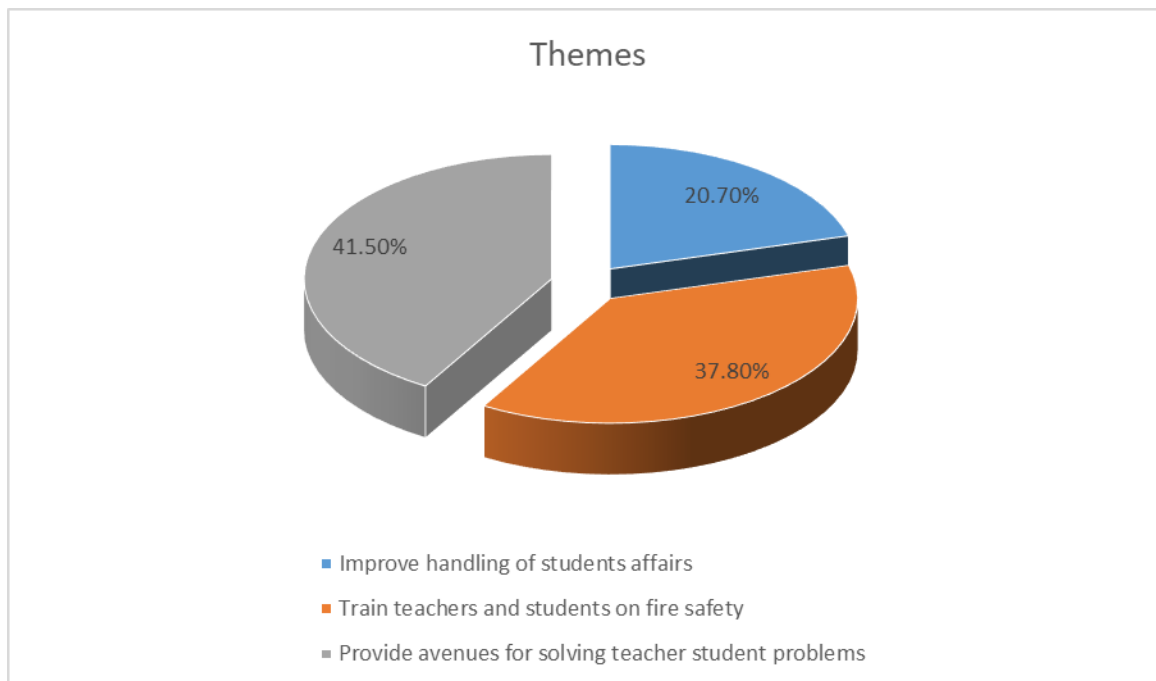
Figure 4.5: Suggested methods to reduce fire disasters in school buildings

From the responses, principals, teachers and students suggested several ways of reducing occurrence of fire disasters in schools in Uasin Gishu County. 41.51% of the respondents indicated that proper channels to solve teacher student's social problems should be established. 37.82% indicated that trainings on fire safety and first aid to be provided to teachers, students and non-teaching staff. 20.66% of the respondents indicated that there be improvement on how students are handled. This indicated that a there is more to be done to improve the psychosocial aspect of school based fire disaster preparedness.

4.9 Results from the observation checklist

The results obtained from the observation of 117 schools are indicated in Table 4.43:

Table 4.43: Results from the observation schedule

ITEM	Dormitory		Laboratory		Halls		Classrooms		Library	
	No.	%	No.	%	No.	%	No.	%	No.	%
Window grills removed	86	**73.5**	55	**47.0**	78	**66.7**	97	**82.9**	12	**10.3**
Windows open outwards	105	**89.7**	112	**95.7**	106	**90.6**	101	**86.3**	34	**29.1**
Doors opening outwards	88	**75.2**	94	**80.3**	76	**65.0**	68	**58.1**	74	**63.2**
Emergency exits available	48	**41.0**	74	**63.2**	68	**58.1**	34	**29.1**	24	**20.5**
Fire-fighting equipment are available	98	**83.8**	96	**82.1**	88	**75.2**	22	**18.8**	32	**27.4**
First-aid kit are available	32	**27.4**	68	**58.1**	04	**3.4**	14	**12.0**	23	**19.7**
Safety instructions are available	45	**38.5**	78	**66.7**	34	**29.1**	18	**15.4**	82	**70.1**
Fire alarms/detectors are available	13	**11.1**	46	**39.3**	3	**2.6**	1	**0.9**	3	**2.6**
Stairs on both ends of Storey buildings are available	5	**4.3**	2	**1.7**	6	**5.1**	3	**2.6**	2	**1.7**
Fire assembly points are available	104	**88.9**	94	**80.3**	96	**82.1**	88	**75.2**	76	**65.0**
Are there any fire disaster related posters in the school	34	**29.1**	44	**37.6**	60	**51.3**	32	**27.4**	60	**51.3**
Fire brigade contacts displayed for easy access	0	**0**	2	**1.7**	1	**0.9**	0	**0**	0	**0**
Lighting arresters are available	12	**10.3**	5	**4.3**	16	**13.7**	23	**19.7**	32	**27.4**
General electrical safety is observed	4	**3.4**	8	**6.8**	22	**18.8**	13	**11.1**	44	**37.6**

From the observation schedule analysed as in Table 4.43 above, most school buildings had grills removed from the windows except for the libraries that stood at 10.3%. This indicated that the risk of students being confined in a fire without fire escape routes was high in the libraries where grills on windows had been maintained to mitigate theft of books. This in turn indicted that in case of a fire in the school libraries there may be more casualties. This is because fire escape routes are limited.

Most school buildings had windows easily open outwards from inside. This was the case except for the libraries where only 29.1% easily opened. The rest of the window had difficulties to open especially because they took too long without opening.

Most school buildings had emergency fire exits. 63.2% of the laboratories, 58.1% of the halls and 41.0% dormitories had emergency fire exits. Most classrooms and libraries didn't have fire exits in place.

Most school buildings had fire fighting equipment and fire related signage to direct students to fire assembly areas. Fire safety instructions were mainly in laboratories at 66.7%. First aid kits were mostly available in laboratories at 58.1%. Most school buildings missed lightning arrestors.

Fire brigade contacts were also not displayed in most school buildings. The researcher also noted that general electrical safety was low. Electrical cables were hanging loose and junction boxes were open.

Most schools therefore had put forth some efforts to improve fire safety. However, there was more to be done especially regarding fire escape routes, safety in school buildings and general electrical safety. On the basis of the results from the observation checklist the researcher concluded that the schools were not adequately prepared for fire disaster.

4.10   Chapter Summary

This chapter has covered the results and findings of this study. The results obtained were based on the research questions as outlined in chapter one of the study. The findings on availability of fire disaster management programs, indicated that though fire disaster management provisions were availed in the school safety manual, they were not fully functional in individual schools. Findings regarding the existence trained students and staff on fire disaster mitigation in the schools, indicated that trainings on fire safety were rarely done. Findings regarding the adequacy firefighting provisions in schools, indicated that firefighting provisions were available in schools but were not adequate. Findings on the compliance to fire safety construction policies in schools buildings, indicated that the MoE guidelines on construction of school buildings were not fully implemented. Findings on the availability of school based psychosocial programs to reduce arson in schools, indicated that psychosocial programs for both teachers and students were not fully utilised. The results from the observation checklists showed that schools had put forth some efforts to improve fire safety but the degree of implementation was low. The poorest performing areas were fire escape routes, general fire safety of school buildings and general electrical safety. The sampled schools were not fully prepared to combat fire related disasters.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the summary of findings, conclusion, recommendations, and gaps which must be filled through further study and the summary of this chapter.

5.2   Summary of Findings of the Study

This study sought to investigate fire disaster preparedness in secondary schools in Uasin Gishu County. The major findings of the study were based on the below listed objectives of the study:

i.   To establish the existence of fire disaster management programs in secondary schools in Uasin Gishu County, Kenya.

ii.   To investigate the existence of fire disaster management trainings to students and staff in secondary schools in Uasin Gishu County, Kenya.

iii.   To examine the adequacy of fire fighting equipment in secondary schools in Uasin Gishu County, Kenya.

iv.   To assess the level of compliance to fire safety policies set for construction of Education buildings in secondary schools in Uasin Gishu County, Kenya.

v.   To investigate the availability of school based psychosocial fire disaster preparedness programs in Uasin Gishu County, Kenya.

5.2.1 Findings based on objective one; to establish the existence of fire disaster management programs in secondary schools in Uasin Gishu County, Kenya.

Findings from the first objective of this study, which was to establish whether secondary schools in Uasin Gishu County, have put in place fire disaster management programs as a measure of fire disaster preparedness. 38.4% of the schools had fire evacuation plans, but they were not in use. This was clear especially because 22.7% teachers and 64.2% students were not aware of the fire evacuation plan. Most schools had not experienced fire disasters before, therefore they didn't fully realise the significance of fire evacuation plan. The findings indicated that 38.4% of schools had fire evacuation plans but they had never used them. 80.8% of the principals, 95.3% teachers and 71.3% students indicated that fire evacuation plans for the vulnerable persons didn't exist.

In the event of a fire therefore students, teachers and other school personnel would not benefit from evacuation plans. This highlights fire disaster unpreparedness.

The largest percentage of respondents rated the effectiveness of fire evacuation plans as moderately effective as indicated by 86.3% of principals by 77.8% teachers and 56.3% students. 75.3% of principals, 74.9% of teachers and 79.5% students also indicated that fire alert procedures were not clearly defined.

Most schools had clearly defined fire assembly points. This was confirmed by 97.3% of the principals. As of the existence of a school safety committee 72.6% of principals indicated that they had one. Schools also indicated that they had a specific teacher in charge of school fire safety. This was an indication that general school safety including fire safety was heading in the right trajectory. The observation checklist indicated that 70.1% of libraries and 66.7% of laboratories were the leading areas with fire safety

instructions. 15.4% of the classrooms were identified as the areas with the least fire safety instructions.

5.2.2 Findings based on objective two; to investigate the existence of fire disaster management trainings to students and staff in secondary schools in Uasin Gishu County, Kenya

Findings based on the second objective which was to establish whether secondary schools in Uasin Gishu County conducted fire disaster management trainings to principals, teachers and students. About half of the sampled population of principals and teachers had conducted fire safety trainings, though this was not frequently done. However, most students indicated that they had not been trained on fire safety. Principals and teachers indicated that the reason trainings were not frequently done was because they didn't have proper training materials, guidelines and that the trainings were rarely inspected by education officers.

The main purpose of trainings on fire safety is to ensure that each person trained is equipped with the knowledge and skills to make the right decisions during a fire disaster.

Majority of students at 90.3% indicated that they could not operate a fire extinguisher. This was also the case for 29.0% of teachers and 13.7% of principals. This population clearly indicated that they didn't know how to defend themselves in case of a fire disaster. The figure of 90.3% of students who were not aware how fire extinguisher is operated was alarming. This showed that the level of fire disaster preparedness regarding use of fire fighting equipment was low.

75.3% of the schools did not invite local fire department for trainings neither did they conduct fire drills nor emergency evacuation drills. The training status of most school personnel was poor. It's clear that more needed to be done to improve that trainings status of the schools. Without proper trainings school personnel lacked the necessary knowledge and skills for fire disaster management. This was an indication that the sampled schools were not adequately prepared to combat fires. The observation checklists showed that schools lacked fire disaster related posters in most school buildings, therefore there was no indications of fire safety consciousness due to lack of fire disaster management trainings.

5.2.3 Findings based on objective three; to examine the adequacy of fire fighting equipment in secondary schools in Uasin Gishu County, Kenya.

The findings based of the third objective of this study which was to establish the adequacy of fire fighting equipment in secondary schools in Uasin Gishu County; the principals, teachers and students indicated that fire fighting equipment were not sufficient. In most schools fire extinguisher, fire sand buckets and fire blankets were the only agreeably adequate fire fighting equipment. 78.0% of principals also indicated that water was in adequate supply in schools in Uasin Gishu County.

The most inadequate fire fighting equipment were; hydrants, fire protection devices, fire alarms, fire detectors and fire fighting outfits. The data indicated much effort to provide schools with fire safety equipment but they were still insufficient. Most principals however indicated that they had a frequent routine of internally inspecting fire safety systems.

Lack of inspection reduced the chances of availability of a particular safety equipment during a fire disaster. If a fire safety equipment were to fail or be in a bad working condition during a fire disaster, this would be equal to that device not being available in that first place. Lack of adequate and inspected fire fighting equipment shows low fire disaster preparedness in schools in Uasin Gishu County.

5.2.4 Findings based on objective four; to assess the level of compliance to fire safety policies set for construction of Education buildings in secondary schools in Uasin Gishu County, Kenya.

The findings of the fourth objective which sort to determine the extent to which school buildings in secondary schools in Uasin Gishu County, were constructed in relation to policy provisions pertaining to fire disaster preparedness. The researcher found out that most schools had in their possession Ministry of Education guidelines on construction of education buildings. However, the degree of implementation of these guidelines were not fully implemented and minimally implemented.

It was established that fire exits were available thought not always accessible as reported by 45.2% of the principals. This implies that in case of a fire disaster the fire exits would not be available to the victims. To 27.4% of the principals fire exits were inadequate, and this was supported by 43.9% of the teachers.

Most respondents indicated that the windows of most dormitories had no grills, this was a positive thing. Windows without grills provides a good escape route in case of any disaster. Most schools did not use combustible materials for decorations, this was good thing since it reduced the amount of combustible materials that are likely to feed a fire.

This was evident by the fact that 33.3 percent of principals strongly agreed that combustible materials were not in use. Another 33.3 percent agreed that the combustible materials are not used for decorations. Most schools had removed grills from the windows and doors. This was true because 22.2 percent of principals strongly agreed that windows are not grilled. However, during the physical observation it was noted that most libraries and laboratory windows had grills on them. This meant that in case of a fire disaster in the libraries or laboratories when occupied by students' chances of escape were low.

43.8% the principals indicated that the dormitories had locking facilities that could be used to lock students from outside. This was also observed during the physical observation. Locking devices that can only be operated from outside are very dangerous in case of arson. This is because the arsonist may easily lock the doors from outside and reduce the chances of escape and survivals for the victims.

Most dining halls were found to have emergency exits and fire extinguishers. The emergency exits to most halls were also clear and easily accessible as noted during the physical observation. This was noted as a good thing that showed fire disaster preparedness was available in some facets. The physical observation also noted that most schools had loosely managed electrical cables that could easily trigger electrical fires.

5.2.5 Findings based on objective five; to investigate the availability of school based psychosocial fire disaster preparedness programs in secondary schools in Uasin Gishu County.

The fifth objective of this study was to determine whether secondary schools in Uasin Gishu County had school based psychosocial programs to avert arson related fire

disasters. Findings on this objective showed that cases of groupings and mass indiscipline among the students were available. This was in line with the Erik Erikson's theory identity vs. role confusion as discussed in the theoretical framework as prone to students at that particular age.

Most school principals handled mass indiscipline and groupings by disciplining and suspending the individuals involved as indicated by 79.5% of the principals. Only 20.5% of the principals incorporated guidance and counselling to control mass indiscipline.

It was also established that most students were not involved in school management activities. It was only the prefects who were mostly involved. Most prefects and students leaders were selected by teachers and the management on the basis of performance and merit. This was closely related to the methods of surveillance employed by teachers and school management on student's behaviour. 50.7% of the principals indicated that student reporters was the most preferred method to monitor student's behaviour. This was also supported by 52.7% of teachers and 51.7% of students. The principals indicated that they had provided whistleblowing avenues for the students to communicate with the management anonymously.

Most schools had guidance and counselling activities as reported by 79.5% of the principals. However this was refuted by 60.1% of the students who argued that guidance and counselling was unavailable and even when available it mostly involved religious activities hence not psychologically involving. Guidance and counselling is significant especially because drug use was mentioned as a concern by the principals.

Principals also agreed that teachers frequently received some in-service and refresher trainings on guidance and counselling. However the teachers disagreed and clearly indicated that the in-service and refresher trainings on guidance and counselling were rarely done.

Most students were aware of the repercussion of arson as a crime punishable by the law of the republic of Kenya. This was an indication that students had been properly oriented on school rules and the law of the land which they are bound to follow. Therefore the students were fully aware of the impact arson to one's life and career path. Furthermore this responses confirmed the fire safety trainings had been conducted.

Most students had access to mainstream media and social media. To the principals and teachers the students were very likely to copy from other schools on learning that there were fire disasters from the media. However, according to 37.7% of the students this was unlikely. The researcher therefore established that the news of school fires affected both teachers and students and in most cases resulted to high suspicions of the students.

Most schools acknowledged existence and use of abusive and inhumane language by some teachers in schools. 60.4% of the students indicated that the most preferred countermeasure by the management was to ignore the students who had been offended.

Most principals did not read government reports on schools fire and school safety in general. This indicated that most principals were not aware of the causes of fire disasters from the government reports. They also would not be aware of the recent developments and recommendations on fire disaster management in schools. This indicate low level of fire disaster preparedness.

5.3   Conclusion

This study sought to investigate fire disaster preparedness in secondary schools in Uasin Gishu County, Kenya. The conclusions of the study were based on the five objectives of the study that guided the researcher. The study established that the status of fire disaster preparedness in secondary schools in Uasin Gishu County was below average. Still the study appreciated the much effort that had already been put forth as a stepping stone to fire safe schools. The study established that there was still a lot to be done to achieve fire safe secondary schools. The conclusions of each objective of the study was summarised as below;

5.3.1 How have secondary schools in Uasin Gishu County implemented fire disaster management programs?

Based on the findings on the first objective, the researcher concluded that majority of the schools lacked fire disaster management programs therefore were not adequately prepared for fire disaster management. This was mainly because the schools lacked practical fire disaster management programs. Most of the schools lacked fire evacuation plans and a majority of the schools that had one didn't use it. On the same note majority of the principals and teachers rated the fire evacuation plans as moderately effective. Fire evacuation for vulnerable persons was also found to be lacking in most of the schools.

Most schools were found to have rare discussions related to fire evacuation plan fire alert procedures. The majority of schools were also found not to have clearly defined fire alert procedures as reported by the sampled population of principals. Fire assembly points were identified as available in many schools.

5.3.2   To what level have students, teachers and staff in secondary schools in Uasin Gishu County trained on fire disaster management?

The researcher observed that majority of principals and teachers indicated that trainings were done while students indicated that trainings were rarely done. Majority of principals and teachers indicated that the reason trainings were not frequently done was because they didn't have proper training materials, guidelines and that the trainings were rarely inspected by education officers.

Majority of students indicated that they could not operate a fire extinguisher. This population clearly indicated that they didn't know how to defend themselves in case of a fire disaster. Most of the schools did not invite local fire department for trainings neither did they conduct fire drills nor emergency evacuation drills and the training status of most school personnel was poor.

The researcher therefore concluded that there were no proper fire disaster management trainings in the schools as most school personnel lacked the necessary knowledge and skills to combat fire. Therefore, more needed to be done to improve the trainings status of the schools. This was an indication that schools were not adequately prepared on fire disaster management as regards trainings.

5.3.3   How adequate are fire fighting resources in secondary schools Uasin Gishu County?

As established on the findings of the third objective, the firefighting provisions in most schools were insufficient. Especially, hydrants, fire protection devices, fire alarms, fire detectors and fire fighting outfits. The data indicated much effort to provide schools with fire safety equipment but they were still insufficient. The firefighting provisions available

were fire extinguishers, fire sand buckets and fire blankets and reliable water supply though they were not adequate.

The firefighting provisions were rarely inspected. Failure to inspection reduced the chances of availability of a particular safety equipment during a fire disaster. It was therefore concluded that in most schools fire fighting facilities were inadequate and not frequently inspected. This indicated that the schools in Uasin Gishu County were not fully prepared on fire disaster.

5.3.4   To what level have schools in Uasin Gishu County complied with fire safety policies for construction of school buildings?

The conclusion based on the fourth objective showed that a good number of school buildings were not fully constructed in relation to fire safety policies. It was established that fire exits were available but not always accessible as reported by 45.2% of the principals. 73.5% of the school dormitories had no grills and combustible materials were not used for decorations. This was noted as a positive thing. However, 89.7 of the libraries and 53.0% of the laboratory windows had grill on them. Dormitories also had locking facilities that could be used to lock students from outside.

It was concluded that most schools had taken steps to improve fire disaster preparedness, but this was still at the initial stages. The Ministry of Education guidelines on construction of education buildings guidelines were not fully implemented. The level of fire disaster preparedness on education buildings was concluded to be at medium.

5.3.5 How have schools in Uasin Gishu County employed school based psychosocial fire disaster preparedness programs to reduce arson?

There were cases of groupings and mass indiscipline among the students. Only a small percentage of the schools incorporated guidance and counselling to control mass indiscipline. 50.7% of teachers disagreed on having received in-service training on guidance and counselling. With this in mind the teachers therefore were found to be incapable of offering well informed psychosocial experience to students. Use of abusive and inhumane language by some teachers existed in schools. The most preferred countermeasure by the management was to ignore the students who had been offended. This indicated lack of proper social reconciliation between the two parties.

48.0% of the principals did not read government reports on schools fires and school safety in general. This indicated that the principals were not aware of the causes of fire disasters from the government reports. They also would not be aware of the recent developments and recommendations on fire disaster management in schools. Schools lacked proper implementation of both students and teachers psychosocial needs. Schools lacked psychosocial programs which act as an interventions to fire disasters. This indicated that schools in Uasin Gishu County were not prepared.

5.4 Recommendations

In view of the foregoing, the researcher came up with the following recommendations deducing from the findings and conclusions as guided from the objectives:

i) That schools to implement practical fire disaster mitigation programs, to put in place and use fire evacuation plans including evacuation of vulnerable persons,

clearly define fire alert procedures and identify as well as communicate on assembly points

ii) That fire disaster management programs be implemented. Principals, teachers, students and other school personnel be trained regularly.

iii) Fire drills to be conducted monthly in the schools together with trainings on fire safety.

iv) Schools to obtain proper firefighting training material, a training calendar and invite local fire departments for trainings.

v) That the school management to place frequently inspect and replenish the fire fighting provisions such as; fire exits, fire extinguishers, fire blankets, fire fighters outfits, protective clothing, fire hydrants, fire escape ladder, and fire hose nozzles and ensure reliable water supply. Also ensure the fire fighting facilities are proportional to the buildings and school capacity.

vi) That all fire exits be installed as directed by MoE on fire safety.

vii) Window grills on dormitories, libraries, laboratories, classes and other high fire risk areas be removed.

viii) To ensure that all doors open outwards and door locking devises are accessible both from inside and outside.

ix) That schools should embrace psychosocial programs for both students and teachers to encourage good relationship between teachers and students

x) That schools should incorporate guidance and counselling as a mitigating strategy for mass indiscipline.

xi) To involve more students in schools management activities to encourage ownership of the school and discourage the use of student reporters as a surveillance method for students' behaviour.

xii) To the provide for students appointed by the teachers to be teacher assistants and the democratically elected students to be the prefects, the two groups to work together to bridge the students gap in the two social groups, provide avenues for streamlining teacher student relationship.

xiii) That school management to strongly discourage use of abusive and inhumane language by teachers

xiv) The Ministry of Education to review the Safety Standard Manual 2008, to capture are the safety recommendations from this research and other works as identified in the literature review.

5.5 Suggestions for further study

After conducting the research, the researcher was of the view that:

i) A study to investigate how psychosocial programs influence secondary school student behaviour to be done, aiming at guiding the government since the Safety standard manual is shallow on the psychosocial support fire safety programs.

ii) Similar studies to be conducted to counties in Kenya to investigate the fire disaster preparedness, since the fire disasters are on the upward trajectory in Kenyan schools.

iii) A comparative investigation on fire disaster preparedness in private and public schools to be conducted in secondary schools in Kenya.

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APPENDICES

Appendix I: Introductory Letter to Respondents

Muiruri Joseph Njuguna

School of Education

Department of Technology

University of Eldoret

P.O. Box 1125- 30100

Eldoret

Dear Sir / Madam,

Re: Data Collection

I am a Masters of Education student from the University of Eldoret, department of Technology Education. I am carrying out a research entitled "**An Investigation on Fire Disaster Preparedness in Secondary Schools in Uasin Gishu County, Kenya**"

I am kindly requesting to be allowed to undertake the study in your school. The information you provide will be used for the purpose of this study and will not be used for any other purpose. The confidentiality of the respondents will be highly respected.

Thank you.

Yours faithfully,

_____

Muiruri Joseph Njuguna

SEDU/TED/M/002/17

Appendix II: Informed Consent

Muiruri Joseph Njuguna
University of Eldoret
P.O. Box 1125 30100,
Eldoret.

Dear Respondent,

You have been selected to take part in the research entitled "**An investigation on fire disaster preparedness in secondary schools in Uasin Gishu County, Kenya**"

The information collected will help in investigating the level of fire disaster preparedness in secondary schools in Uasin Gishu County and help improve the current mitigating strategies and countermeasures put forth to curb fire disasters in secondary schools.

To ensure confidentiality, do not write your name or anything that will lead to your identification.

Thank you for your assistance and co-operation.

Yours faithfully,

_____

Muiruri Joseph Njuguna

SEDU/TED/M/002/17

Appendix III: Questionnaire for the Principals

Section I: Demographic Information

1) Gender

    a) Male ( )   b) Female

2) For how long have you been a principal?

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3) For how long have you served in the current station?

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4) What category is your school?

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Section II: Fire disaster management programs

1a) Does your school have an evacuation plan in the event of fire?

a) Yes, but has never been used ( )

b) Yes, and it has ever been used ( )

c) I don't know ( )

d) No, but there is plan to have one ( )

e) No, and there is no plan to have one in future ( )

  b) Are you aware of the evacuation plan in your school case of fire?

    a) Yes ( )   b) No ( )

2) How you been trained of the evacuation plan in case of fire?

a) Yearly ( )   b) Half yearly ( )   c) Per term ( )   d) Monthly ( )

 e) Weekly ( ) f) Never ( )

3) How effective are the emergency plans for fire disaster in your school?

a) Very effective ( )   b) Effective ( )   c) Moderately effective ( )

d) Ineffective ( )   e) Very ineffective ( )

4a) Does your school have evacuation plans for vulnerable persons, e.g. physically disabled persons in case of fire?

a) Yes ( )   b) No ( )

b) Does your school have any internal inspections on fire safety management?

a) Yes ( )   b) No ( )

5) Does your school have fire alert procedures?

a) Yes ( )   b) No ( )

6) Does your school have fire assembly points?

a) Yes ( )   b) No ( )

7) Kindly propose other ways fire safety plans should be improved in your school.

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8) Does your school have a safety sub-committee?

a) Yes ( )   b) No ( )

9) Does your school have a teacher in charge of school safety?

a) Yes ( )   b) No ( )

Section III: Fire Disaster Management Trainings

10) (i) Are students and your fellow staff members trained on fire disaster management.

a) Yes ( )   b) No ( )

(ii) If Yes in (i) above, how often

     a) Yearly ( )   b) Half yearly ( )   c) Per term ( )   d) Monthly ( )

 e) Weekly ( ) f) Never ( )

 (iii) If No in (i) above, tick the most applicable response.

a) There has never been a need to train them ( )

b) Education officers do not inspect for trainings ( )

c) There are no materials to teach them with ( )

d) It is not a ministry of education requirement ( )

e) Any other specify ………………………………………………….

11) Kindly indicate your level of agreement to the following statements in relation to training in fire disaster risk reduction where;

Strongly Agree = SA, Agree = A, Disagree = D and Strongly Disagree = SD

Statement	SA	A	D	SD
Students have been trained on fire disaster management				
Some individuals in the school are provided with a personal copy of prepared written instructions on what to do in case of a fire				
Teachers are adequately trained in fire disaster management				
Kitchen staffs are well trained in fire disaster management				
Laboratory technicians are well trained in fire disaster management				

School drivers are trained in fire disaster management				
School security personnel are well trained in fire disaster management				
School nurse is well trained in fire disaster management				

12) Propose other ways in which training on fire safety can be improved

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13) Does your school invite local fire department to give talks or demonstrations on fire disaster management?

      a) Yes ( )   b) No ( )

Section IV: Fire Fighting Equipment

14) Are the fire fighting equipment in your school adequate?

      a) Yes ( )   b) No ( )   c) I don't know ( )

15) Kindly indicate the level of adequacy of the following fire fighting equipment in your school.

Fire fighting equipment	Very adequate	Adequate	Inadequate	Very inadequate
1. Fire hydrants				
2. Fire extinguishers				
3. Fire resistive materials				

4. Fire exits				
5. Fire blankets				
6. Fire protection devices				
7. Fire escape ladder				
8. Fire detectors				
9. Fire alarm				
10. Fire hose and nozzles				
11. Fire fighters outfits				
12. Fire sand bucket				
13. Self-contained breathing apparatus				
14. Reliable water supply				

16a) How periodically is fire fighting equipment inspected?

      a) Once per term ( )   b) Once per year ( )

      c) Once every two years ( )   d) Never ( )

 b) Can you be able to operate a fire extinguisher in case of a fire?

      a) Yes ( )   b) No ( )

17) In your own opinion which fire fighting equipment may be added in the school to improve fire preparedness in terms of adequacy of fire fighting equipment?

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Section V: School Buildings Construction in Line with MOE Guidelines

18a) Does your school have M.O.E. guidelines on fire safety policies set for construction of Education buildings.

    a) Yes ( )   b) No ( )

b) If your answer is yes rate to what degree your school has implemented the guidelines

    a) Fully ( )   b) Partially ( )   c) Minimal ( )   d) None ( )

c) Are there fire exits in the buildings in your school?

a) Yes and they are accessible to all ( )

b) Yes, but they are not accessible to all ( )

19) Kindly indicate your level of agreement to the following statements in relation to school buildings and fire safety where:

Strongly Agree = SA, Agree = A, Disagree = D and Strongly Disagree = SD

Statement	SA	A	D	SD
Fire exits are clear of obstruction all times				
Fire extinguishers are in accessible positions				
Combustible materials have not been used for decorations				
Halls have emergency doors and fire extinguishers				
Windows in the schools dormitories have no grills				

Doors in buildings in the school swing outwards				
Boarding facilities have not been designed to lock-in students				
Laboratories have fire fighting equipment				
Classes have been constructed in a way that students can easily escape in case of fire				
Offices have fire fighting equipment				
Kitchen has fire fighting equipment				

20) Please suggest other ways in which the school buildings can be improved to enhance fire risk reduction preparedness.

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Section VI: School Based Psychosocial Programs

21) Are there any notable cases of groupings/gangs and mass indiscipline in your school?

    a) Yes ( )   b) No ( )

22) Briefly explain how your school handles groupings/gangs and mass indiscipline

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23) How are students in your school involved in institution management and formation of school rules?

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24) How are prefects and other school leadership teams selected?

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25a) Does your school have guidance and counselling sessions that involves improving individual student and teacher relationship?

    a) Yes ( )   b) No ( )

b) If yes in 25a above explain any benefits related to this guidance and counselling

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26) Does your school have any surveillance method to monitor student's behaviour? If any kindly state and explain

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27) Are students in your school made to know that arson is a crime punishable by law and the consequences of students who have been found guilty of arson?

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28a) Do students in our school have access to mainstream media and social media?

    a) Yes ( )   b) No ( )

b) If yes in 28a above what is the impact to students relating to news of fires in other schools and how is access to social media controlled?

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29) Are there any cases of use of abusive and dehumanizing language and treatment by teachers in your institution?

    a) Yes ( )   b) No ( )

b) If yes in 29a above how such cases are take care of?

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30) Kindly indicate your level of agreement to the following statements in relation to use of abusive and dehumanizing language and treatment by teachers in your institution?

Strongly Agree = SA, Agree = A, Disagree = D and Strongly Disagree = SD

Tick as appropriate

Statement	SA	A	D	SD
Teachers in my school use proper language to address students				
All students are treated fairly regardless of gender, political affiliation, tribe, religious believes				
Action is taken by the administration for any abuse of student rights				
Any concern on drug use and drug abuse by students				
Whistle blowing/tip-offs avenues are available and				

whistle-blower's identity kept anonymous				
There are gangs/groups/ cases of mass indiscipline in my school				
Teachers in my school get frequent guidance and counselling trainings on how to handle students				
I have read government reports on causes of arson in schools				

31) Does your institution have any whistleblowing avenues? Explain if any

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32) What recommendations would you give to schools to reduce the occurrence of fire disasters in schools?

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Thank you for your participation in this very important study

Appendix IV: Questionnaire for the Teachers

Section I: Demographic Information

1) Gender

    a) Male ( )   b) Female

2) For how long have you been a teacher?

    a) 0 – 5 years ( )   b) 6 – 10 years ( )   c) Above 10 years ( )

3) For how long have you served in the current station?

    a) 0 – 5 years ( )   b) 6 – 10 years ( )   c) Above 10 years ( )

4) What category is your school?

    a) National ( )   b) County ( )   c) District ( )

Section II: Fire Disaster Management Safety Programs

1a) Does your school have an evacuation plan in the event of fire?

    a) Yes, but has never been used ( )

    b) Yes, and it has ever been used ( )

    c) I don't know ( )

    d) No, but there is plan to have one ( )

    e) No, and there is no plan to have one in future ( )

 b) Are you aware of the evacuation plan in your school case of fire?

    a) Yes ( )   b) No ( )

2) How you been trained of the evacuation plan in case of fire?

    a) Yearly ( )   b) Half yearly ( )   c) Per term ( )   d) Monthly ( )

    e) Weekly ( )   f) Never ( )

3) How effective are the emergency plans for fire disaster in your school?

      a) Very effective ( )   b) Effective ( )   c) Moderately effective ( )

      d) Ineffective ( )   e) Very ineffective ( )

4a) Does your school have evacuation plans for vulnerable persons, e.g. physically disabled persons in case of fire?

      a) Yes ( )   b) No ( )

b) Does your school have any internal inspections on fire safety management?

      a) Yes ( )   b) No ( )

5) Does your school have fire alert procedures?

      a) Yes ( )   b) No ( )

6) Does your school have fire assembly points?

      a) Yes ( )   b) No ( )

7) Kindly propose other ways fire safety plans should be improved in your school.

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8) Does your school have a safety sub-committee?

      a) Yes ( )   b) No ( )

9) Does your school have a teacher in charge of school safety?

      a) Yes ( )   b) No ( )

Section III: Fire Disaster Management Trainings

10) (i) Are students and your fellow staff members trained on fire disaster management.

      a) Yes ( )   b) No ( )

(ii) If Yes in (i) above, how often

    a) Yearly ( )   b) Half yearly ( )   c) Per term ( )   d) Monthly ( )

    e) Weekly ( )   f) Never ( )

(iii) If No in (i) above, tick the most applicable response.

    a) There has never been a need to train them ( )

    b) Education officers do not inspect for trainings ( )

    c) There are no materials to teach them with ( )

    d) It is not a ministry of education requirement ( )

    e) Any other specify ………………………………………………….

11) Kindly indicate your level of agreement to the following statements in relation to training in fire disaster risk reduction where;

Strongly Agree = SA, Agree = A, Disagree = D and Strongly Disagree = SD

Statement	SA	A	D	SD
Students have been trained on fire disaster management				
Some individuals in the school are provided with a personal copy of prepared written instructions on what to do in case of a fire				
Teachers are adequately trained in fire disaster management				
Kitchen staffs are well trained in fire disaster management				
Laboratory technicians are well trained in fire disaster management				

School drivers are trained in fire disaster management			
School security personnel are well trained in fire disaster management			
School nurse is well trained in fire disaster management			

12) Propose other ways in which training on fire safety can be improved

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13) Does your school invite local fire department to give talks or demonstrations on fire

disaster management?

   a) Yes ( ) b) No ( )

Section IV: Fire Fighting Equipment

14) Are the fire fighting equipment in your school adequate?

   a) Yes ( ) b) No ( ) c) I don't know ( )

15) Kindly indicate the level of adequacy of the following fire fighting equipment in your school.

Fire fighting equipment	Very adequate	Adequate	Inadequate	Very inadequate
Fire hydrants				
Fire extinguishers				
Fire resistive materials				
Fire exits				
Fire blankets				
Fire protection devices				
Fire escape ladder				
Fire detectors				
Fire alarm				
Fire hose and nozzles				
Fire fighters outfits				
Fire sand bucket				
Self-contained breathing apparatus				
Reliable water supply				

16a) How periodically is fire fighting equipment inspected?

    a) Once per term ( )   b) Once per year ( )

    c) Once every two years ( )   d) Never ( )

b) Can you be able to operate a fire extinguisher in case of a fire?

　　　a) Yes ( )　　　b) No ( )

17) In your own opinion which fire fighting equipment may be added in the school to improve fire preparedness in terms of adequacy of fire fighting equipment?

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18a) Does your school have M.O.E. guidelines on fire safety policies set for construction of Education buildings.

　　　a) Yes ( )　　　b) No ( )

b) If your answer is yes rate to what degree your school has implemented the guidelines

　　　a) Fully ( )　　　b) Partially ( )　　　c) Minimal ( )　　　d) None ( )

c) Are there fire exits in the buildings in your school?

　　　a) Yes and they are accessible to all ( )

　　　b) Yes, but they are not accessible to all ( )

19) Kindly indicate your level of agreement to the following statements in relation to school buildings and fire safety where:

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Combustible materials have not been used for				

decorations				
Halls have emergency doors and fire extinguishers				
Windows in the schools dormitories have no grills				
Doors in buildings in the school swing outwards				
Boarding facilities have not been designed to lock-in students				
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Classes have been constructed in a way that students can easily escape in case of fire				
Offices have fire fighting equipment				
Kitchen has fire fighting equipment				

20) Please suggest other ways in which the school buildings can be improved to enhance fire risk reduction preparedness.

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Section VI: School Based Psychosocial Programs

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   a) Yes ( )   b) No ( )

22) Briefly explain how your school handles groupings/gangs and mass indiscipline

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23) How are students in your school involved in institution management and formation of

school rules?

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24) How are prefects and other school leadership teams selected?

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25a) Does your school have guidance and counselling sessions that involves improving

individual student and teacher relationship?

    a) Yes ( )   b) No ( )

b) If yes in 25a above explain any benefits related to this guidance and counselling

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26) Does your school have any surveillance method to monitor student's behaviour? If any kindly state and explain

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27) Are students in your school made to know that arson is a crime punishable by law and the consequences of students who have been found guilty of arson?

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28a) Do students in our school have access to mainstream media and social media?

    a) Yes ( )   b) No ( )

b) If yes in 28a above what is the impact to students relating to news of fires in other schools and how is access to social media controlled?

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29) Are there any cases of use of abusive and dehumanizing language and treatment by teachers in your institution?

    a) Yes ( )   b) No ( )

b) If yes in 29a above how such cases are take care of?

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Strongly Agree = SA, Agree = A, Disagree = D and Strongly Disagree = SD

Tick as appropriate

Statement	SA	A	D	SD
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All students are treated fairly regardless of gender, political affiliation, tribe, religious believes				
Action is taken by the administration for any abuse of student rights				
Any concern on drug use and drug abuse by students				
Whistle blowing/tip-offs avenues are available and whistle-blower's identity kept anonymous				
There are gangs/groups/ cases of mass indiscipline in my school				

Teachers in my school get frequent guidance and counselling trainings on how to handle students				
I have read government reports on causes of arson in schools				

31) Does your institution have any whistleblowing avenues? Explain if any

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32) What recommendations would you give to schools to reduce the occurrence of fire disasters in schools?

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Thank you for your participation in this very important study

Appendix V: Questionnaire for the Students

Section I: Demographic Information

1) Please indicate your gender?

    a) Male ( ) b) Female ( )

2) In which form are you?

    c) Form III ( )   d) Form IV ( )

3) For how long have you been in this school? ……………………………..

4) What category is your school?

    a) National ( )   b) County ( )   c) District ( )

Section II: Fire Disaster Management Safety Programs

1a) Does your school have an evacuation plan in the event of fire?

    a) Yes, but has never been used ( )

    b) Yes, and it has ever been used ( )

    c) I don't know ( )

    d) No, but there is plan to have one ( )

    e) No, and there is no plan to have one in future ( )

 b) Are you aware of the evacuation plan in your school case of fire?

    a) Yes ( )   b) No ( )

2) How often have you been trained on the fire evacuation plan in case of fire?

    a) Yearly ( )   b) Half yearly ( )   c) Per term ( )   d) Monthly ( )

    e) Weekly ( )   f) Never ( )

3) How effective are the emergency plans for fire disaster in your school?

     a) Very effective ( )   b) Effective ( )   c) Moderately effective ( )

     d) Ineffective ( )   e) Very ineffective ( )

4a) Does your school have evacuation plans for vulnerable persons, e.g. physically disabled persons in case of fire?

     a) Yes ( )   b) No ( )

b) Does your school have any internal inspections on fire safety management?

     a) Yes ( )   b) No ( )

5) Does your school have fire alert procedures?

     a) Yes ( )   b) No ( )

6a) Does your school have fire assembly points?

     a) Yes ( )   b) No ( )

7) Kindly propose other ways fire safety plans should be improved in your school.

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8) Does your school have a safety sub-committee?

     a) Yes ( )   b) No ( )

9) Does your school have a teacher in charge of school safety?

     a) Yes ( )   b) No ( )

Section III: Fire Disaster Management Trainings

10) (i) Are you and your fellow students members trained on fire disaster management.

     a) Yes ( )   b) No ( )

(ii) If Yes in (i) above, how often

     a) Yearly ( )   b) Half yearly ( )   c) Per term ( )   d) Monthly ( )

     e) Weekly ( ) f) Never ( )

(iii) If No in (i) above, tick the most applicable response.

     a) There has never been a need to train them ( )

     b) Education officers do not inspect for trainings ( )

     c) There are no materials to teach them with ( )

     d) It is not a ministry of education requirement ( )

     e) Any other specify …………………………………………………..

11) Kindly indicate your level of agreement to the following statements in relation to training in fire disaster risk reduction where;

Strongly Agree = SA, Agree = A, Disagree = D and Strongly Disagree = SD

Statement	SA	A	D	SD
Students have been trained on fire disaster management				
Some individuals in the school are provided with a personal copy of prepared written instructions on what to do in case of a fire				
Teachers are adequately trained in fire disaster management				

Kitchen staffs are well trained in fire disaster management				
Laboratory technicians are well trained in fire disaster management				
School drivers are trained in fire disaster management				
School security personnel are well trained in fire disaster management				
School nurse is well trained in fire disaster management				

12) Propose other ways in which training on fire safety can be improved

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13) Does your school invite local fire department to give talks or demonstrations on fire

disaster management?

    a) Yes ( )   b) No ( )

14) Are you aware of any class of fire?

    a) Yes ( )   b) No ( )

Section IV: Fire Fighting Equipment

14) Are the fire fighting equipment in your school adequate?

    a) Yes ( )   b) No ( )   c) I don't know ( )

15) Kindly indicate the level of adequacy of the following fire fighting equipment in your school.

Fire fighting equipment	Very adequate	Adequate	Inadequate	Very inadequate
1. Fire hydrants				
2. Fire extinguishers				
3. Fire resistive materials				
4. Fire exits				
5. Fire blankets				
6. Fire protection devices				
7. Fire escape ladder				
8. Fire detectors				
9. Fire alarm				
10. Fire hose and nozzles				
11. Fire fighters outfits				
12. Fire sand bucket				
13. Self-contained breathing apparatus				
14. Reliable water supply				

16a) How periodically is fire fighting equipment inspected?

a) Once per term ( )   b) Once per year ( )   c) Once every two years ( )

d) Never ( )

b) Can you be able to operate a fire extinguisher in case of a fire?

    a) Yes ( )   b) No ( )

17) In your own opinion which fire fighting equipment may be added in the school to improve fire preparedness in terms of adequacy of fire fighting equipment?

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Section V: School Buildings Construction in Line with MoE Guidelines

18a) Does your school have MoE guidelines on fire safety policies set for construction of Education buildings.

    a) Yes ( )   b) No ( )

b) If your answer is yes rate to what degree your school has implemented the guidelines

    a) Fully ( )   b) Partially ( )   c) Minimal ( )   d) None ( )

c) Are there fire exits in the buildings in your school?

    a) Yes and they are accessible to all ( )

    b) Yes, but they are not accessible to all ( )

    c) No but there is a plan that they will be installed ( )

    d) No and there are no plans to install them ( )

19) Kindly indicate your level of agreement to the following statements in relation to school buildings and fire safety where:

Strongly Agree = SA, Agree = A, Disagree = D and Strongly Disagree = SD

Statement	SA	A	D	SD
Fire exits are clear of obstruction all times				
Fire extinguishers are in accessible positions				
Combustible materials have not been used for decorations				
Halls have emergency doors and fire extinguishers				
Windows in the schools dormitories have no grills				
Doors in buildings in the school swing outwards				
Boarding facilities have not been designed to lock-in students				
Laboratories have fire fighting equipment				
Classes have been constructed in a way that students can easily escape in case of fire				
Offices have fire fighting equipment				
Kitchen has fire fighting equipment				

20) Please suggest other ways in which the school buildings can be improved to enhance fire risk reduction preparedness.

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Section VI: School Based Psychosocial Programs

21) Are there any notable cases of groupings/gangs and mass indiscipline in your school?

    a) Yes ( )   b) No ( )

22) Briefly explain how your school handles groupings/gangs and mass indiscipline

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23) How are students in your school involved in institution management and formation of school rules?

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24) How are prefects and other school leadership teams selected?

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25 a) Does your school have guidance and counselling sessions that involves improving individual student and teacher relationship?

    a) Yes ( )   b) No ( )

b) If yes in 25a above explain any benefits related to this guidance and counselling

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26) Does your school have any surveillance method to monitor student's behaviour? If any kindly state and explain

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27) Are students in your school made to know that arson is a crime punishable by law and the consequences of students who have been found guilty of arson?

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28a) Do students in our school have access to mainstream media and social media?

    a) Yes ( )   b) No ( )

b) If yes in 28a above what is the impact to students relating to news of fires in other schools and how is access to social media controlled?

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29) Are there any cases of use of abusive and dehumanizing language and treatment by teachers in your institution?

    a) Yes ( )   b) No ( )

b) If yes in 29a above how such cases are take care of?

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c) Kindly indicate your level of agreement to the following statements in relation to use of abusive and dehumanizing language and treatment by teachers in your institution?

Strongly Agree = SA, Agree = A, Disagree = D and Strongly Disagree = SD

Tick as appropriate

Statement	SA	A	D	SD
Teachers in my school use proper language to address students				
All students are treated fairly regardless of gender, political affiliation, tribe, religious believes				
Action is taken by the administration for any abuse of student rights				
Whistle blowing/tip-offs avenues are available and whistle-blower's identity kept anonymous				
There are gangs/groups/ cases of mass indiscipline in my school				

Students in my school get frequent guidance and counselling trainings on how to resolve conflict and keep peace				
Students in my school have close relationship with teachers as personal mentors				

d) Does your institution have any whistleblowing avenues? Explain if any

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30) What recommendations would you give to schools to reduce the occurrence of fire disasters in schools?

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Thank you for your participation in this very important study

Appendix VI: Observation Checklist

Check for the existence of the following in halls, dormitories, laboratories classrooms and library. Put a tick for compliance or x for non-compliance.

Item	Dormitory	Laboratory	Halls	Classrooms	Library
1. Window grills removed					
2. Windows easy to open outwards					
3. Are the doors opening outwards					
4. Emergency exits available					
5. Fire-fighting equipment					
6. First-aid kit					
7. Safety instructions					
8. Fire alarms/detectors					
9. Stairs at both ends of Storey buildings					
10. Fire assembly points					
11. Are there any fire disaster related posters in the school					
12. Are fire brigade contacts displayed for easy access					
13. Lighting arresters					
14. General electrical safety					

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Appendix VII: Map of Uasin Gishu County
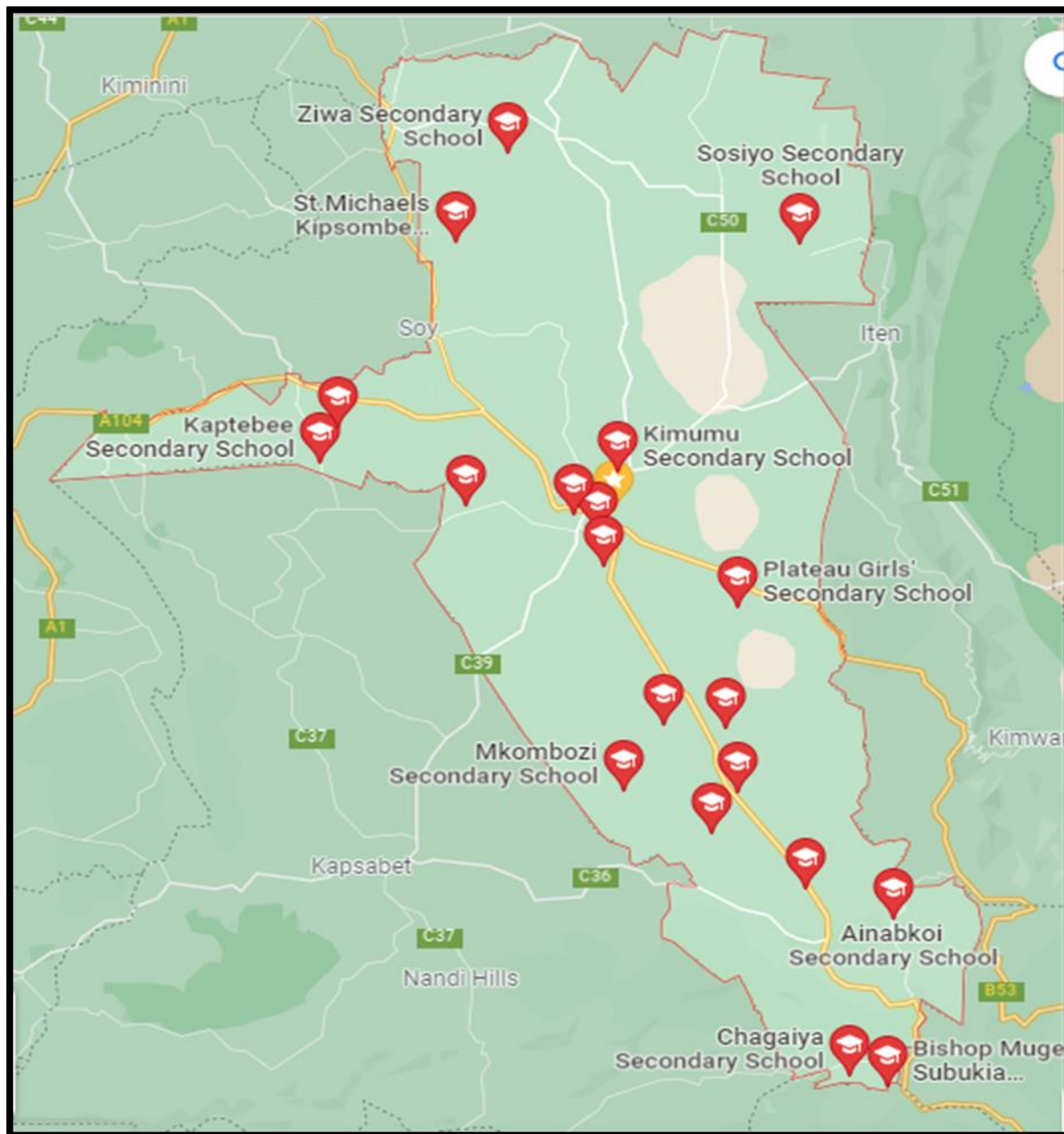
Figure 4.6: Map of Uasin Gishu County (Google maps, 2022)

Appendix VIII: Research Permit

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY & INNOVATION

Ref No: **320356**

Date of Issue: **01/March/2022**

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This is to Certify that Mr. MUIRURI JOSEPH NJUGUNA of University of Eldoret, has been licensed to conduct research in Uasin-Gishu on the topic: AN ASSESSMENT OF FIRE DISASTER PREPAREDNESS IN SECONDARY SCHOOLS IN UASIN GISHU COUNTY, KENYA for the period ending: 01/March/2023.

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Appendix IX: Similarity Report

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Paper Title	AN INVESTIGATION ON FIRE DISASTER PREPAREDNESS IN SECONDARY SCHOOLS IN UASIN GISHU COUNTY, KENYA
Similarity	10%
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